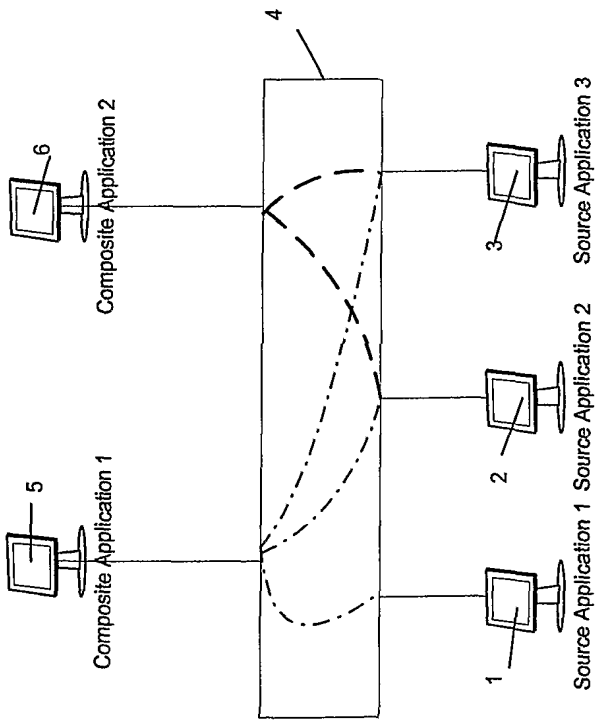

4
6
Composite Application 2
5
Composite Application 1
3
Source Application 3
2
Source Application 2
1
Source Application 1

FIG 1

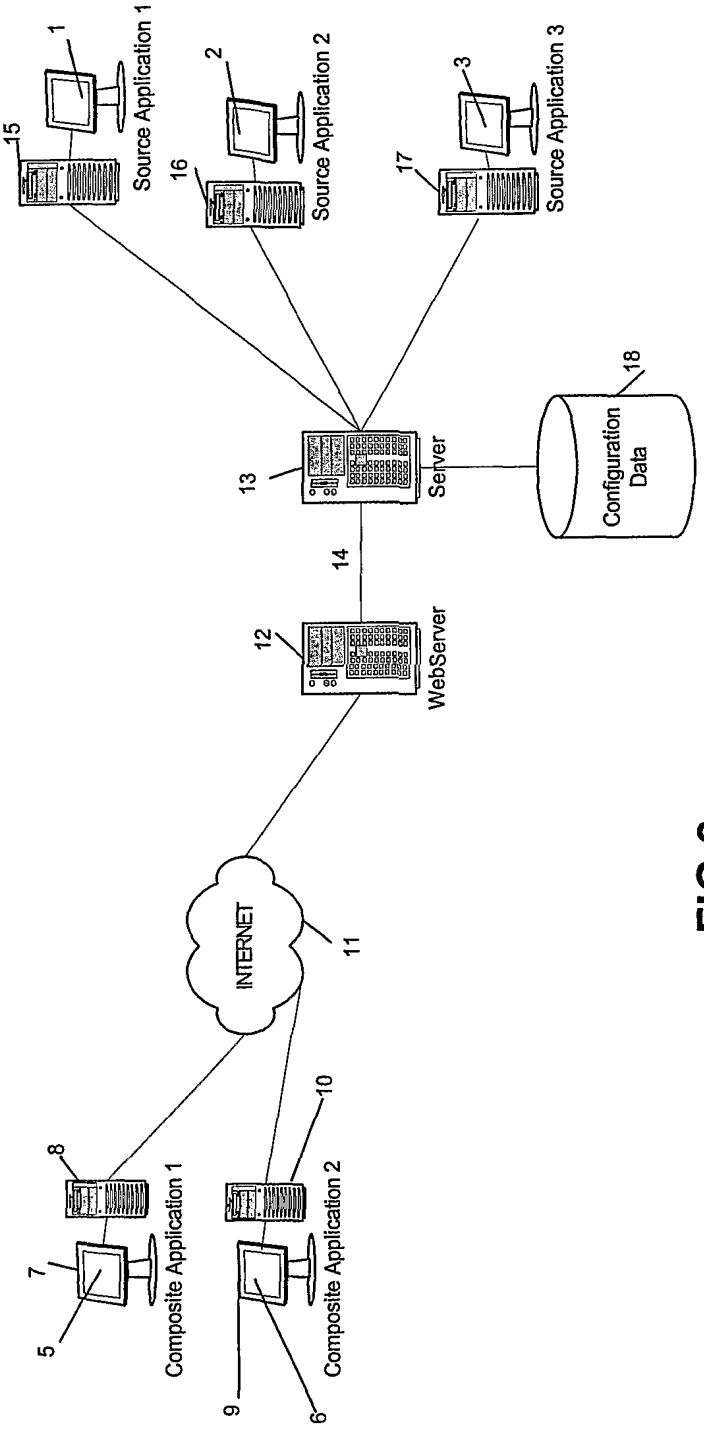

Source Application 1
Source Application 2
Source Application 3
Server
Configuration Data
WebServer
INTERNET
Composite Application 1
Composite Application 2
1
2
3
5
6
7
8
9
10
11
12
13
14
15
16
17
18

FIG 2

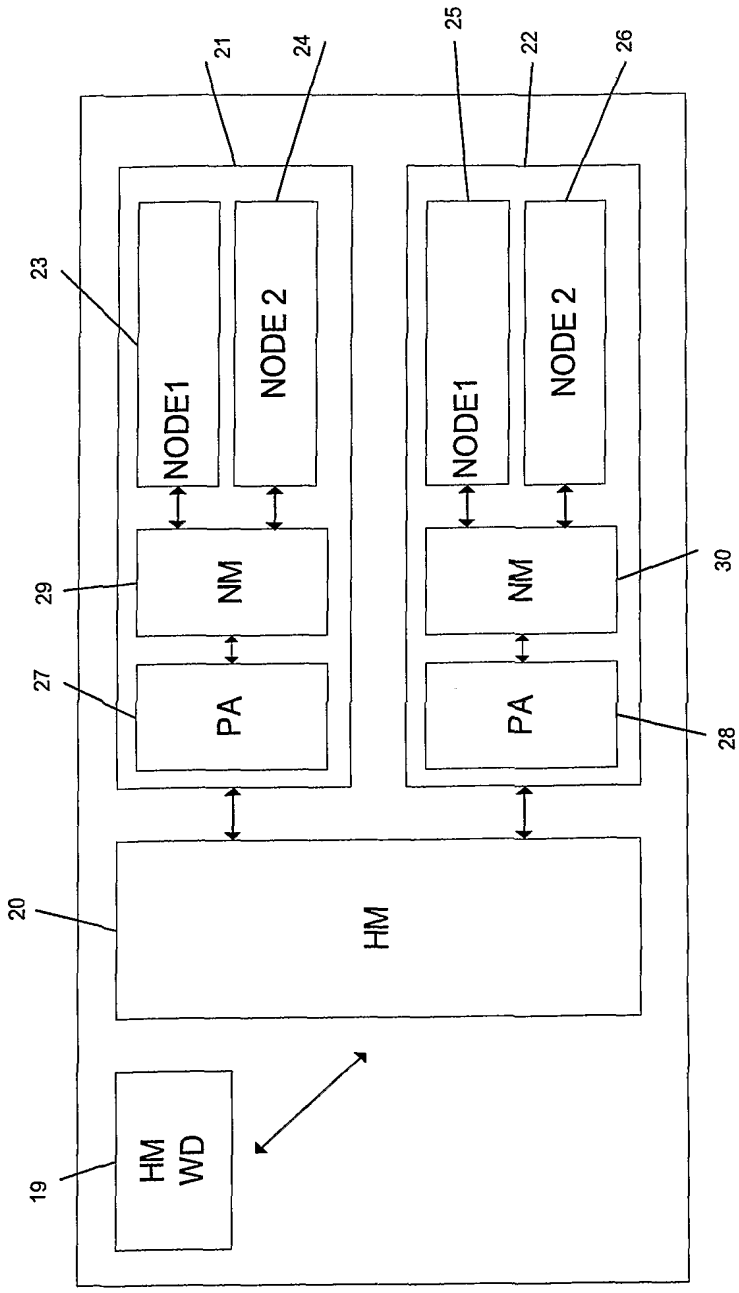

21
24
25
22
26
23
NODE1
NODE 2
NODE1
NODE 2
29
NM
NM
30
27
PA
PA
28
20
HM
19
HM
WD

FIG 3

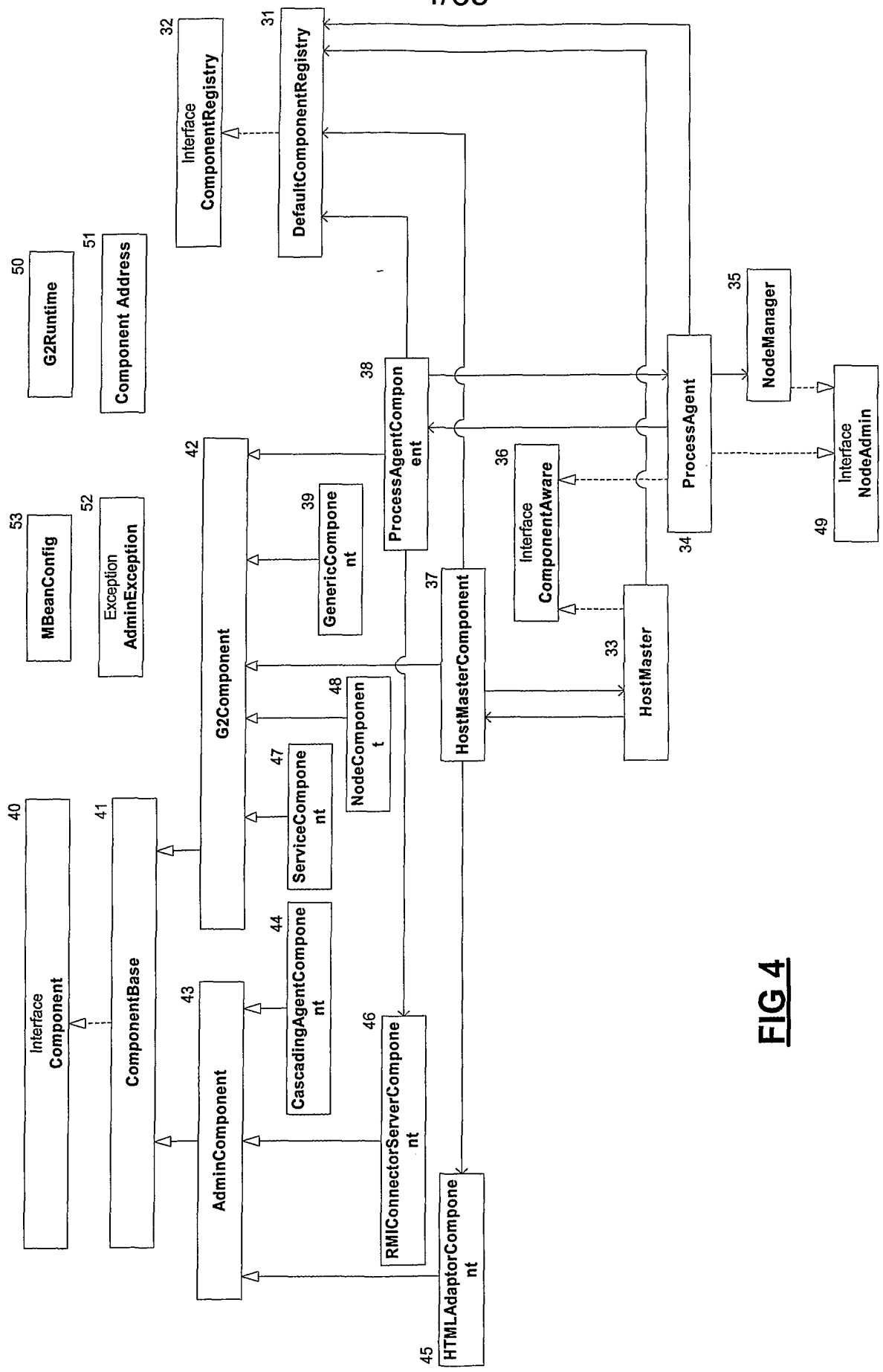

Interface
ComponentRegistry
32
DefaultComponentRegistry
31
G2Runtime
50
Component Address
51
NodeManager
35
ProcessAgentCompon
ent
38
ProcessAgent
34
Interface
NodeAdmin
49
MBeanConfig
53
Exception
AdminException
52
GenericCompone
nt
39
G2Component
42
Interface
ComponentAware
36
HostMasterComponent
37
HostMaster
33
NodeComponen
t
48
ServiceCompone
nt
47
Interface
Component
40
ComponentBase
41
CascadingAgentCompone
nt
44
AdminComponent
43
RMIConnectorServerCompone
nt
46
HTMLAdaptorCompone
nt
45

FIG 4

31

DefaultComponentRegistry
-DefaultComponentRegistry minstance=new DefaultComponentRegistry() -MbeanServer mMyMBEanServer -String mG2MbeanDomain -String mDefaultDomain -String mHostIpString -String mProcessIdString -Hashtable mRegisteredComponent
-DefaultComponentReistry() -void init() -void reisterMBeanObject(String domain, Object obj, Hashtable nvps) -void unregisterMBeanObject(ObjectName target) -void CleanUpMBeanServer() -voidregisterComponent(Component c) -void unregisterComponent(Component c) -Component registerComponentAware(ComponetAware ca) -Component registerGenericComponent(Object o) -Component registerRmiConnectorServer(RmiConnectorServer o) -Component registerCascadingAgent(CascadingAgent o) -Component registrHtmlAdapterServer(HtmlAdapterServer o) -void cleanup() -Set findObjectNames(AddressMask am) +Hashtable getComponentProperties(Component c) +ComponentRegistry getInstance() +ComponentAddress lookupComponentAddress(Object o) +void waitForComponentRegistration(String objectname, int maxwaitseconds) +Component registerObject(Object o) +void unregisterObject(Object o) +void addNotificstionListener(ObjectName name, NotificstionListener listener, java.lang.Object.handback) +void invokeOnObject(AddressMask m, String method, Object[] params, String[] signature) +void invokeOnObject(Object o, String method, Object[] params, String[] signature) +void invokeOnObject(ComponentAddress addr, String method, Object[] params, String[] signaure) +Set findLocalObjectComponents(AddressMask props) +Set findGlobalObjectComponents(AddressMask props)

FIG 4A

32

ComponentRegistry
+Component registerObject(Object c) +void unregisterObject(Object c) +void invokeOnObject(AddressMask addr, String method, Object[] params, String[] signature) +void invokeOnObject(ComponentAddress addr, String method, Object[] params, String[] signature) +void invokeOnObject(Object o, String method, Object[] params, String[] signature) +void WaitForComponentRegistration(String objectname, int maxwaitseconds) +ComponentAddress lookupComponentAddress(Object o) +Set findLocalObjectComponents(AddressMask props) +set findGlobalObjectComponents(AddressMask props)

FIG 4B

33

HostMaster
-boolean misDebug -int mNextProcessId -VectormActiveProcessIds -boolean mIsAlive -ComponentRegistry mCRegistry -HostMaster mTheMaster -HostMasterComponent mHotMasterComponent *-String mProcessPropsString*
+HostMaster() +int addProcess() +void destroyProcess(Integer pid) +void main(String[] args) +void shutdown() +void kill() *+void SetLsDebug(boolean d)* +boolean isDebug() +boolean isAlive() -boolean getBooleanArg(String token, String[] args) +void processLost(int pid) +Class getComponentClass() -void recover() -ShutdownMonitor

FIG 4C

34

ProcessAgent
-int mMyPid -ProcessAgentComponent mAgent *-ProcessAgent mAgent* -NodeManager mNodeManager -boolan mIsAlive -ComponentRegistry mCRegistry
+ProcessAgent(int pid) *+boolean isAlive()* +void main(String[] args) +void addNode(NodeType nt) +void removeNode(NodeType nt) +void startNode(NodeType nt) +void stopNode(NodeType nt) *+void destroyProcess()* +void addNode(String nt) +void removeNode(String nt) +void startNode(String nt) +void stopNode(String nt) +int getProcessId() +Class getComponentClass()

FIG 4D

35

NodeManager
-Vector mynodes
+void NodeManager() +Node createNode(NodeType type) -void destroyNode(Node n) -void startNode(Node n) -void stopNode(Node n) +void destroyNode(NodeType nt) +void startNode(NodeType nt) +void stopNode(NodeType nt) +Node getNode(NodeType type) +Integer activeNodeCount() +void recoverNodes()

FIG 4E

36

ComponentAware
+Class getComponentClass()

FIG 4F

37

HostMasterComponent
-String MBEANTYPE="HostMaster" -String MYBEAQNDESCRIPTION -int HEARTBEATRETRIES=1 -int HEARTBEATPERIOD=5000 -HostMaster mHostMaster -HtmlAdapterComponent mHtmlAdapterComponent -Hashtable mRemAgents -ComponentRegistry mCRegistry
+HostMasterComponent(Object hm) -CascadingAgent createCascadingAgent(String cascadingDomain, String hostname, int targetProcess +String getType() +void processAdded(int pid) +void processRemoved(int pid) +void preRegister() +void preUnregister() +void handleNotification(Notification n, Object o) +void processRecovered(int pid) #String getMBeaqnDescription() #ModelMBeanOperationInfo[] getMBenOperations()

FIG 4G

38

ProcessAgentComponent
+String MBEANTYPE="ProcessAgent" -String MYBEANDESCRIPTION="" -ProcessAgent mProcessAgent -RMIConnectorServerComponent mRMIServer -ComponentRegistry mCRegistry
+ProcessAgentRegistry(Object pa) + void preRegister() +void preUnregister() +String getType() #String getMBeanDescription() #ModelMBeanOperationInfo[] getMBeanOperations()

FIG 4H

39

GenericComponent
-String MYBEANDESCRIPTION="Object" +GenericComponent(Object o) +String getType() #String getMBeanDescription()

FIG 4I

40

Component
+String IDPROP="id" +String TYPEPROP="type" +String HOSTPROP="host" +String PROCESSPROP="process" +String NODEPROP="node" +String SERVICEPROP="service"
+String getId() +String getType() +String getService() +String getNode() +String getAdminDomain() +Object getObject() +Object getMBEan() +String getHostId() +String getProcessId() +void preRegister() +void preUnregister()

FIG 4J

41

ComponentBase
-Object mTheObject -String mObjectDescription -Object mTheMBean -ArrayList mMBeanOperationInfo -ArrayList mMBEANAttributeInfo -ArrayList mMBeanNotificationInfo -String mHostIp -String mProcessId
+ComponentBase(Object o) +boolean isMBean(Object o) +String getId() +String getType() +String getService() +string getNode() +Object getObject() +void preRegister() +void preUnregister() +Object getMBean() #void setObjectDescription(String desc) #ModelMBeanOperatingInfo[] getMBeanOperations() #ModelMBeanAttributeInfo[] getMBeanAttributes() #ModelMBeanNotificationInfo[] getMBeanNotifications() #String getMBeanDescription() -void setupMBeanInfo() +String getAdminDomain() +String getHostIP() +String getProcessId()

FIG 4K

42

G2Component
+G2Component(Object o) +String getAdminDomain()

FIG 4L

43

AdminComponent
+AdminComponent(Object o) +String getAdminDomain()

FIG 4M

44

CascadingAgentComponent
+String MBEANTYPE="CascadingAgent" +String CONNECTORCLIENTCLASSNAME="com.sun.i"
+CascadingAgentComponent(CascadingAgent agent) +String getId() +String getType()

FIG 4N

45

HTMLAdaptorComponent
-String HTTPCONNECTIONSERVER -HtmlAdaptorServer mHtmlAdaptor
+HtmlAdaptorComponent(HtmlAdaptorServer has) +String getType()

FIG 4O

46

RMIConnectorServerComponent
+String RMICONNECTORSERVER="RmiConnectorServer" +String RMICONNECTORSERVICENAMEPREFIX="Process-" -RmiConnectorServer mTheRmiConnector=null
+RMIConnectorServerComponent(RmiConnectorServer o) +String getRMIConnectorServiceName(int targetProcessId) +String getType()

FIG 4P

47

ServiceComponent
-BaseService m_Service -String MYBEANDESCRIPTION="A Service"
+ServiceComponent(Object s) +String etType() +String getNode() #String getMBeanDescription() #ModelMBeanAttributeInfo[] getMBeanAttributes() #ModelMBeanOperationInfo[] getMBeanOperation

FIG 4Q

48

NodeComponent
-String MYMBEANDESCRIPTION="A node : runs a set" -MasterNode mNode
+NodeComponent(Object n) +String getType() #String *getMBeanDescription*() #ModelMBeanAttributeInfo[] getMBeanAttributes() #ModelMBeanOperationInfo[] getMBeanOperations()

FIG 4R

49

NodeAdmin
+Node createNode(NodeType type) +void startNode(NodeType nt) +void stopNode(NodeType nt) +Node getNode(NodeType type) +Integer activeNodeCount() +void recoverNodes()

FIG 4S

50

G2Runtime
-G2Runtime mInstance=new G2Runtime() -int mProcessId -String mHostIdString
-G2Runtime() +void init() +ComponentRegistry getComponentRegistry() +String getHostId() +int getProcessId()

FIG 4T

51

ComponentAddress
-Hashtable mAddressAttributes -String HOST=G2Runtime.getHostIp() -String PROCESS=""+G2Runtime.getProcessId() -AddressAttribute[] mAttributeList=new AddressAttribute[]
+ComponentAddress newAddress() +ComponentAddress getAddress(Component c) -ComponentAddress(Hashtable props) -ComponentAddress() +Hashtable getAttributes() +void setAttribute(AddressAttribute aa) +AddressAttribute getAttribute(String name) +boolean isComplete() +boolean equals(Object o) +String toString()

FIG 4U

52

MBeanConfig
+int RMIPORT=1099 +int HTTPPORT=8080 +String G2DOMAQIN="G2Domain" +String DEFAULTDOMAIN="DefaultDomain" +String PIDPROPERTYNAME="g2.processid"

FIG 4V

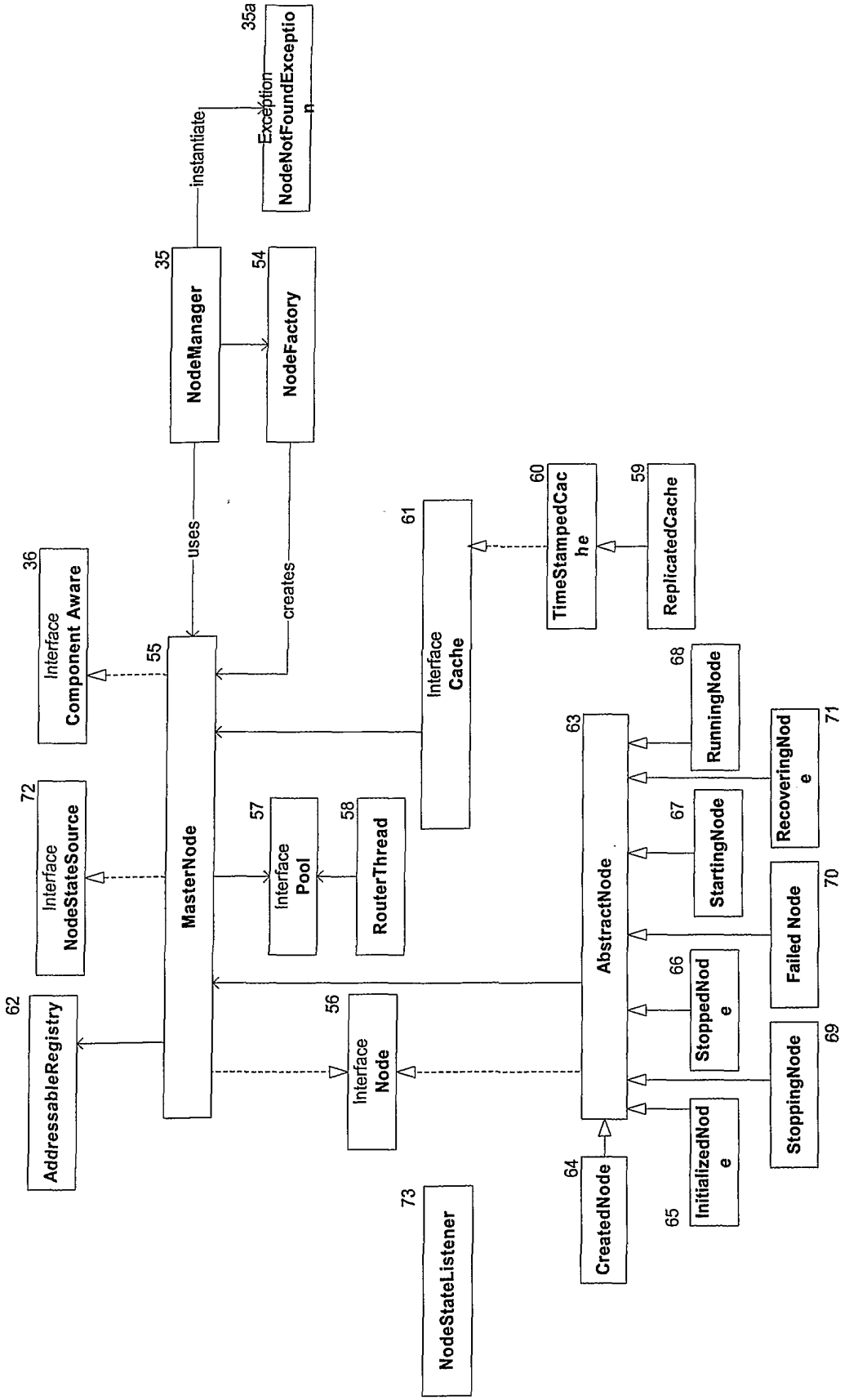

35a
Exception
NodeNotFoundException
instantiate
35
NodeManager
54
NodeFactory
uses
creates
36
Interface
Component Aware
55
MasterNode
61
Interface
Cache
60
TimeStampedCache
59
ReplicatedCache
72
Interface
NodeStateSource
57
Interface
Pool
58
RouterThread
62
AddressableRegistry
56
Interface
Node
63
AbstractNode
68
RunningNode
71
RecoveringNode
67
StartingNode
70
Failed Node
66
StoppedNode
69
StoppingNode
64
CreatedNode
65
InitializedNode
73
NodeStateListener

FIG 5

54

com.genient.platform.node.NodeFactory
-Object[][] NODEDEFS={ { NodeType.A
-NodeFactory instance=new NodeFactory()
NodeFactory()
+NodeFactory getInstance()
+Node[] createNodes(NodeType[] nodetype)
+Node createNode(NodeType nodetype)
-void loadNodeDefs()
-LinkedList getApplicationAdapterServiceList
-LinkedList getClientAdapterServiceList()
-LinkedList getBPStoreServiceList()
-LinkedList getTMServiceList()
-LinkedList getSystemManagerServiceList()
-LinkedList getDebugNodeServiceList()

FIG 5A

56

interface ...platform.node.Node
+void init()
+void start()
+void stop()
+void destroy()
+void recover()

FIG 5C

57

interface com.genient.platform.util.Pool
+void releaseObject(Object o)
+Object getObject()
+int getAvailableCount()
+int getSize()

FIG 5D

55

ComponentAware ...platform.node.MasterNode
-Thread mEventNotifier
-NodeType type
-String subType
-HashMap mStateTransitions
-HashMap mServices
-HashMap mListeners
-boolean isInitialised
-boolean removed
-String lastError=NOERROR
-String NOERROR="NONE"
-Node mState
-Pool mRouterThreadPool
-Cache mCache
-AddressableRegistry mAddressak
-void notifyListeners()
-void setType(NodeType type)
-void startServices()
-void stopServices()
+String getLastError()
+NodeType getType()
+Node getState()
+String getStateDescription()
-void initRouterThreadPool()
#void addService(HandlerContext s
#void removeServices()
+ MasterNode()
+void addListener()
+void removeListener()
+void start()
+void stop()
+void setSubType(String st)
+String getSubType()
+void init()
+void destroy()
+Integer getAvailableRouterThread
+RouterThread getRouterThread()
+void releaseRouterThread(Router
+Class getComponentClass()
+void recover()
#void setState(Node newState)

FIG 5B

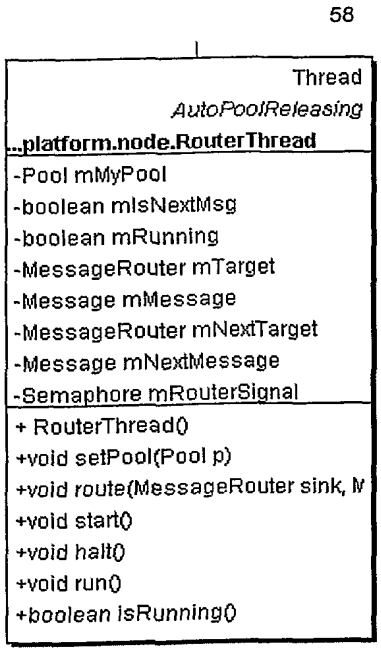


FIG 5E

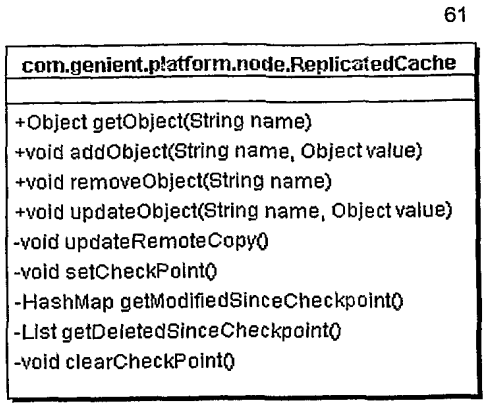


FIG 5F

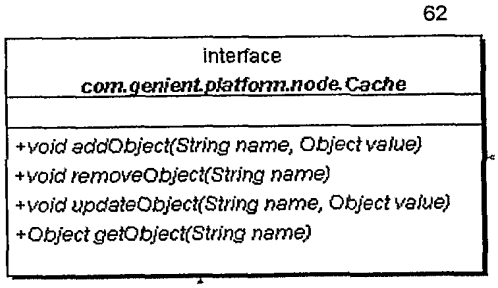


FIG 5H

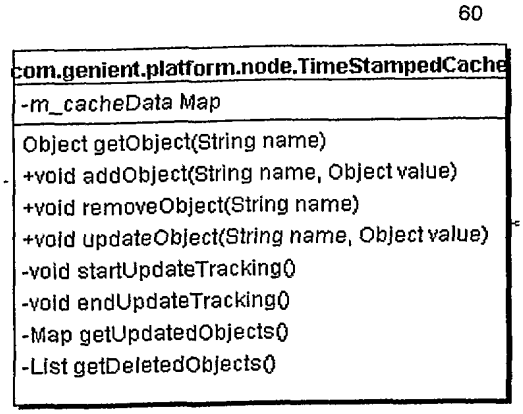


FIG 5G

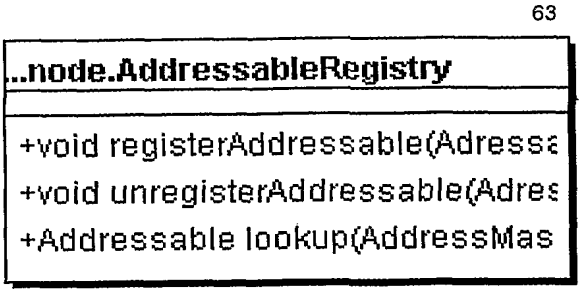


FIG 5I

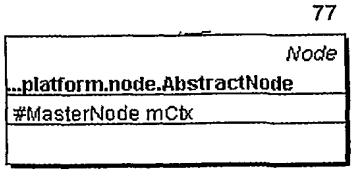


FIG 5J

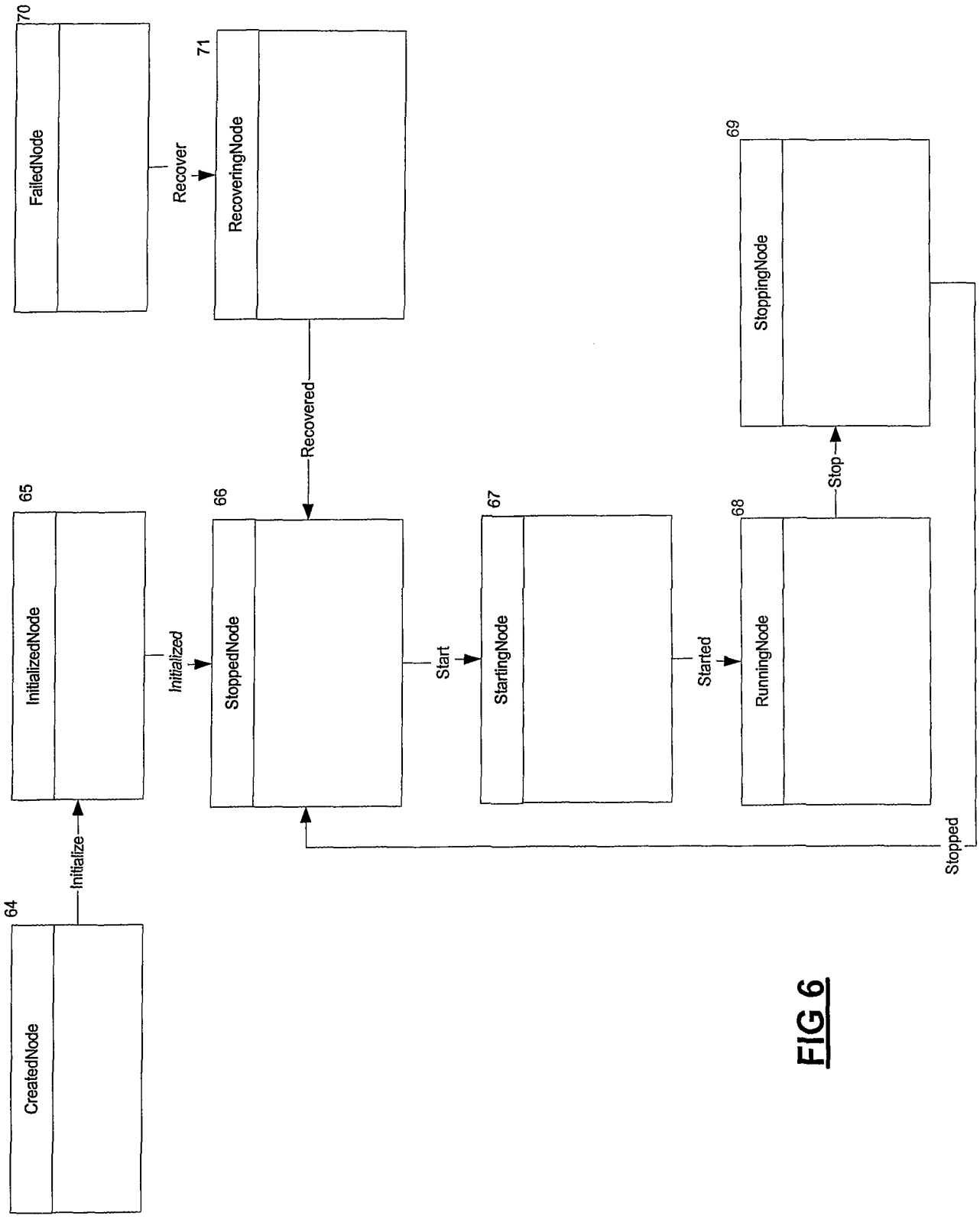

64
CreatedNode
Initialize
65
InitializedNode
Initialized
66
StoppedNode
Start
67
StartingNode
Started
68
RunningNode
Stop
69
StoppingNode
Stopped
70
FailedNode
Recover
71
RecoveringNode
Recovered

FIG 6

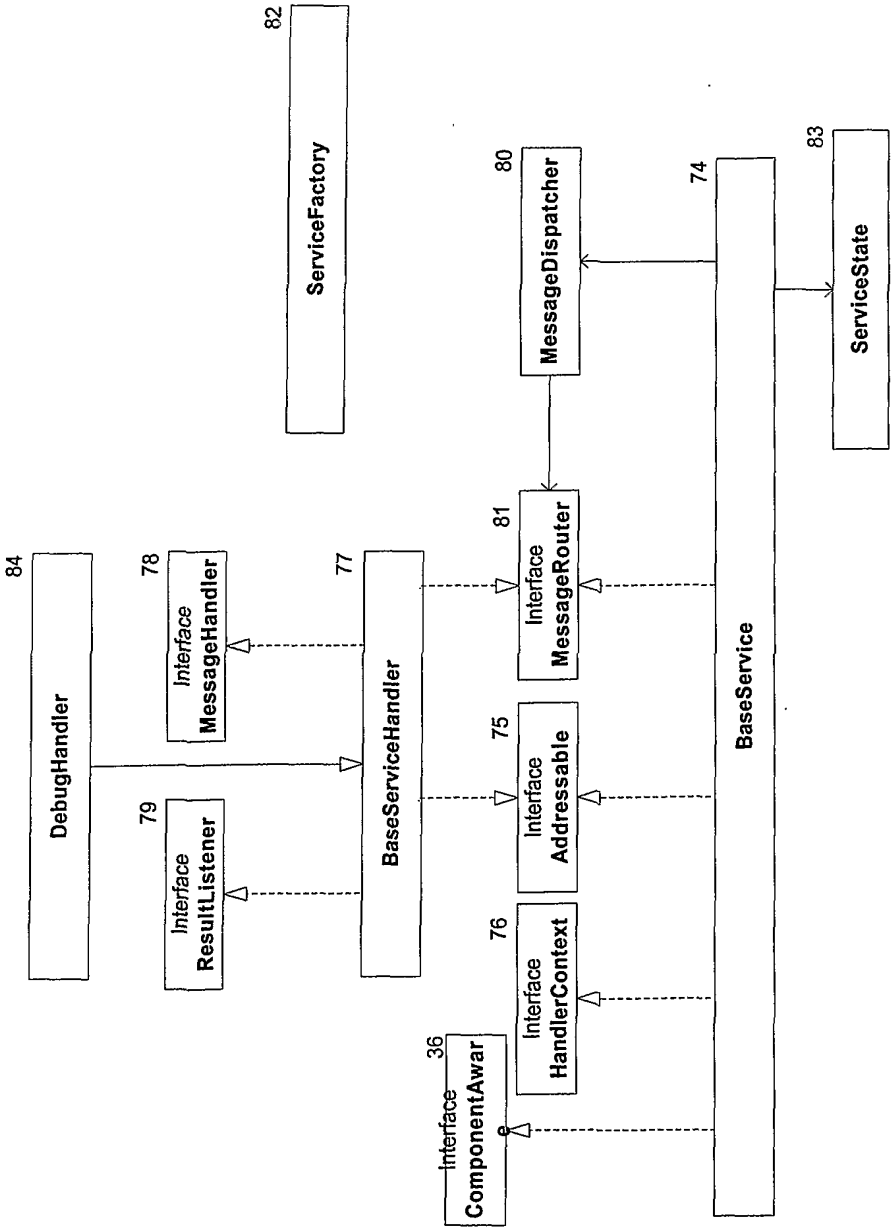

82
ServiceFactory
80
MessageDispatcher
74
83
ServiceState
84
DebugHandler
78
Interface
MessageHandler
77
81
Interface
MessageRouter
79
Interface
ResultListener
BaseServiceHandler
75
Interface
Addressable
BaseService
76
Interface
HandlerContext
36
Interface
ComponentAwar

FIG 7

74

ComponentAware ...platform.framework.BaseService
-int mMessageSendCount -int mMessageReceivedCount -float mMsgAvg -HashMap mMessageListeners -int mResultsHandled -int mResultsMissed -MasterNode mNode -ServiceType mType -ServiceState mState -Pool mServiceableHandlerPool -PriorityQueue mInQueue -PriorityQueue mOutQueue -MessageDispatcher mMyInDispat -MessageDispatcher mMyOutDispa -ComponentAddress mMyAddress -AddressableRegistry mRegistry
<<constructor>> + BaseService(ServiceType service +void initService(String host, String +ServiceType getType() #void sendServiceMessage(Messa +void route(Message msg) +void updateMessageStatistics(Me +ComponentAddress getAddress() #void initHandlerPool(Vector handl +void startService() +void stopService() +MasterNode getNode() +Integer getState() +Integer getInQueueSize() +Integer getOutQueueSize() +Integer getMessageInCount() +Integer getMessageOutCount() +String getAverageMessageAge() +Integer getAvailableHandlers() #Queue getInQueue() #Queue getOutQueue() +void addResultListener(Messagel +ResultListener removeResultList +Integer getResultListenersCount(+void receivedResult() +Integer getResultsHandled() +void missedResult() +Integer getResultsMissed() +Class getComponentClass()
-MessageToHandlerForwarder -MessageToRouterForwarder

FIG 7A

76

interface com.genient.platform.framework.HandlerContext
+ServiceType getType() +void route(Message msg) +ComponentAddress getAddress() +Integer getState() +void addResultListener(MessageId replyToId, ResultListener target) +ResultListener removeResultListener(MessageId replyToId) +void registerAddressable(Addressable obj) +void unregisterAddressable(Addressable obj) +ArrayList lookupAddressables(AddressMask mask) +void addResultListener(MessageId replyToId, ResultListener target) +void addPersistentResultListener(MessageId replyToId, ResultListe

FIG 7B

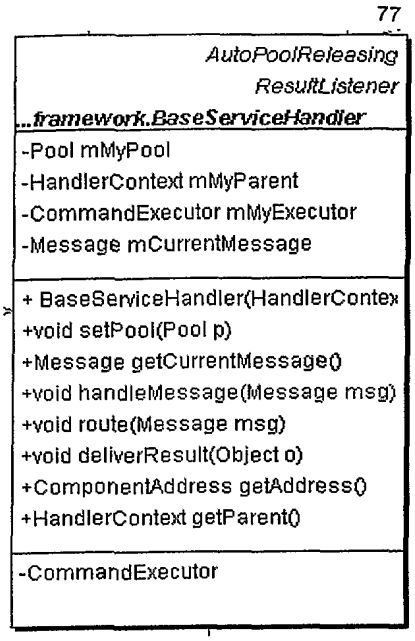


FIG 7C

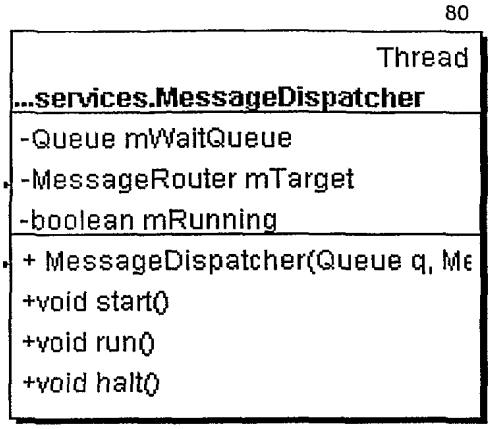


FIG 7D

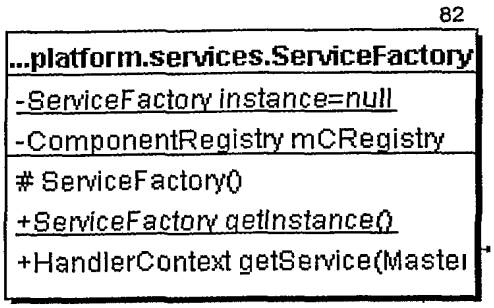


FIG 7E

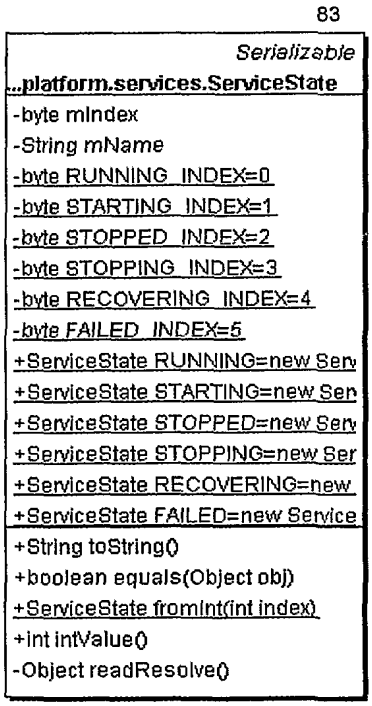


FIG 7F

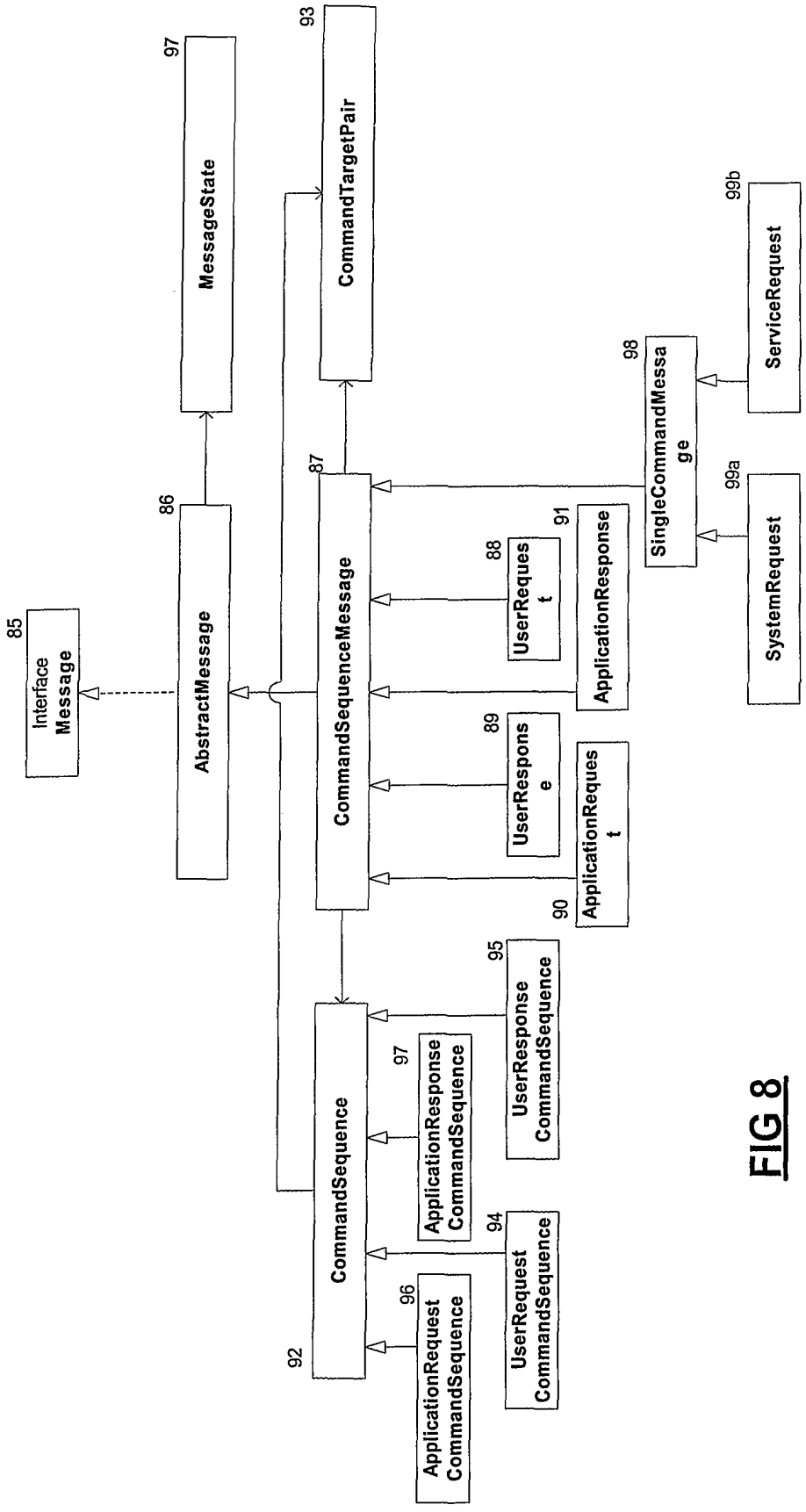

85
Interface Message
86
AbstractMessage
97
MessageState
93
CommandTargetPair
87
CommandSequenceMessage
88
UserReques t
89
UserRespons e
90
ApplicationReques t
91
ApplicationResponse
98
SingleCommandMessa ge
99a
SystemRequest
99b
ServiceRequest
92
CommandSequence
94
UserRequest CommandSequence
96
ApplicationRequest CommandSequence
97
ApplicationResponse CommandSequence
95
UserResponse CommandSequence

FIG 8

85

Interface **Message**
+void addMessageNVP(name:String, value:Serializable) +void cancel() +void commandFailed (e:RequestProcessingException) +void commandSucceded() +Message copyWithNewId() +AddressMask getAddressMask() +long getAge() +Command getCommand() +GenientID getContext() +Object getHeaderValue (headername : String) +Iterator getHistory() +Messageid getId() +Serializable getMessageNVPValue (name : String) +MessageId getRootId() +MessageType getType() +boolean hasFinished() +Map headersAsMap() +boolean isMultiDelivery() +boolean isValidHeaderName (name: String) +void leaveProcess() -void readObject (stream: ObjectInputStream) +void removeMessageNVP (name: String) +void setHeaderValue (headername: String, headervalue:Object

FIG 8A

86

AbstractMessage
-mClonedFrom : Messageid -mCreateTime : long -mHeaderMap : HashMap -mHeaders : HashMap *-mHistory : ArrayList* -mid : Messageid -mNVPs : HashMap -mSource : AddressMask -mState : MessageState
#AbstractMessage(src:Addressable, ctx:GenientID) +void addMessageNVP(name:String, value:Serializable) *#void appendToHistory (id: Messageid)* +void cancel() +void commandFailed (e:RequestProcessingException) #boolean commandFinished () *+void commandSucceded()* #void commandSuccessNotification() +Message copyWithNewId() +AddressMask getAddressMask() *+long getAge()* +Command getCommand() #Command getCommandForState (state:MessageState) +GenientID getContext() +Object getHeaderValue (headername : String) +Iterator getHistory() +Messageid getId() +Serializable getMessageNVPValue (name : String) +MessageId getRootId() +AddressMask getSource() #AddressMask getTargetForState(state: MessageState) +boolean hasFinished() +Map headersAsMap() -void initHeaderMap() +boolean isMultiDelivery() +boolean isValidHeaderName (name: String) - boolean isValidHeaderType (name: String, value: Object) +void leaveProcess() -void readObject (stream: ObjectInputStream) +void removeMessageNVP (name: String) +void setHeaderValue (headername: String, headervalue:Object #void setHistory (hist: Iterator) +String toString()

FIG 8B

87

CommandSequenceMessage
-mSequence : CommandSequence -m_ErrorDelivery : CommandTargetPair -m_IPCDelivery : CommandTargetPair -m_ProcessDelivery : CommandTargetPair
+CommandSequenceMessage (src:Addressable, defaultSeq : CommandSequence, errorDelivery : CommandTargetPair, ctx : GenientId) +CommandSequenceMessage (src:Addressable, defaultSeq : CommandSequence, errorDelivery : CommandTargetPair, ctx : GenientId, scrolltosource: boolean) #boolean commandsFinished() #void commandSucessNotifcation() +Command getCommandForState (state : MessageState) #AddressMask getTargetForState (state: Message State)

FIG 8C

88

UserRequest
+UserRequest (src:Addressable, requestData : Object, ctx : GenientId) +MessageType getType() -CommandTargetPair getFailureDelivery()

FIG 8D

89

UserResponse
+UserResponse (src:Addressable, requestData : Object, ctx : GenientId) +MessageType getType() -CommandTargetPair getFailureDelivery()

FIG 8E

90

ApplicationRequest
+ApplicationRequest (src:Addressable, requestData : Object, ctx : GenientId) +MessageType getType() -CommandTargetPair getFailureDelivery()

FIG 8F

91

ApplicationResponse
+ApplicationResponse (src:Addressable, requestData : Object, ctx : GenientId) +MessageType getType() -CommandTargetPair getFailureDelivery()

FIG 8G

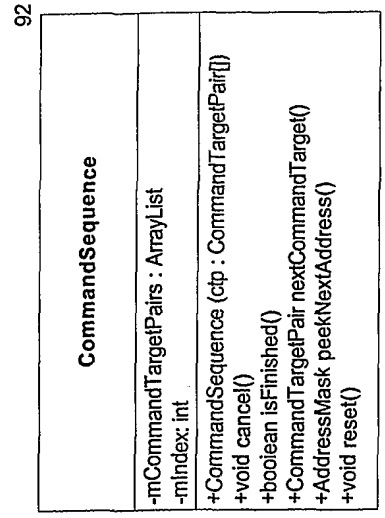


FIG 8H

FIG 8I

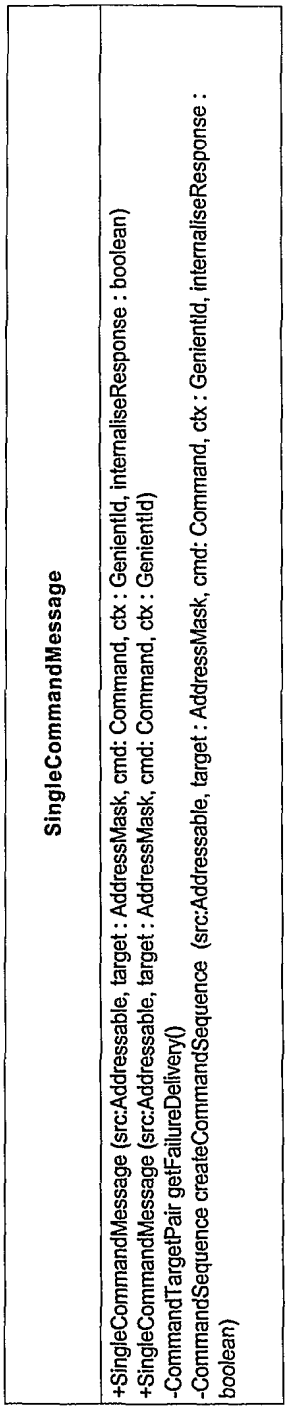


FIG 8K

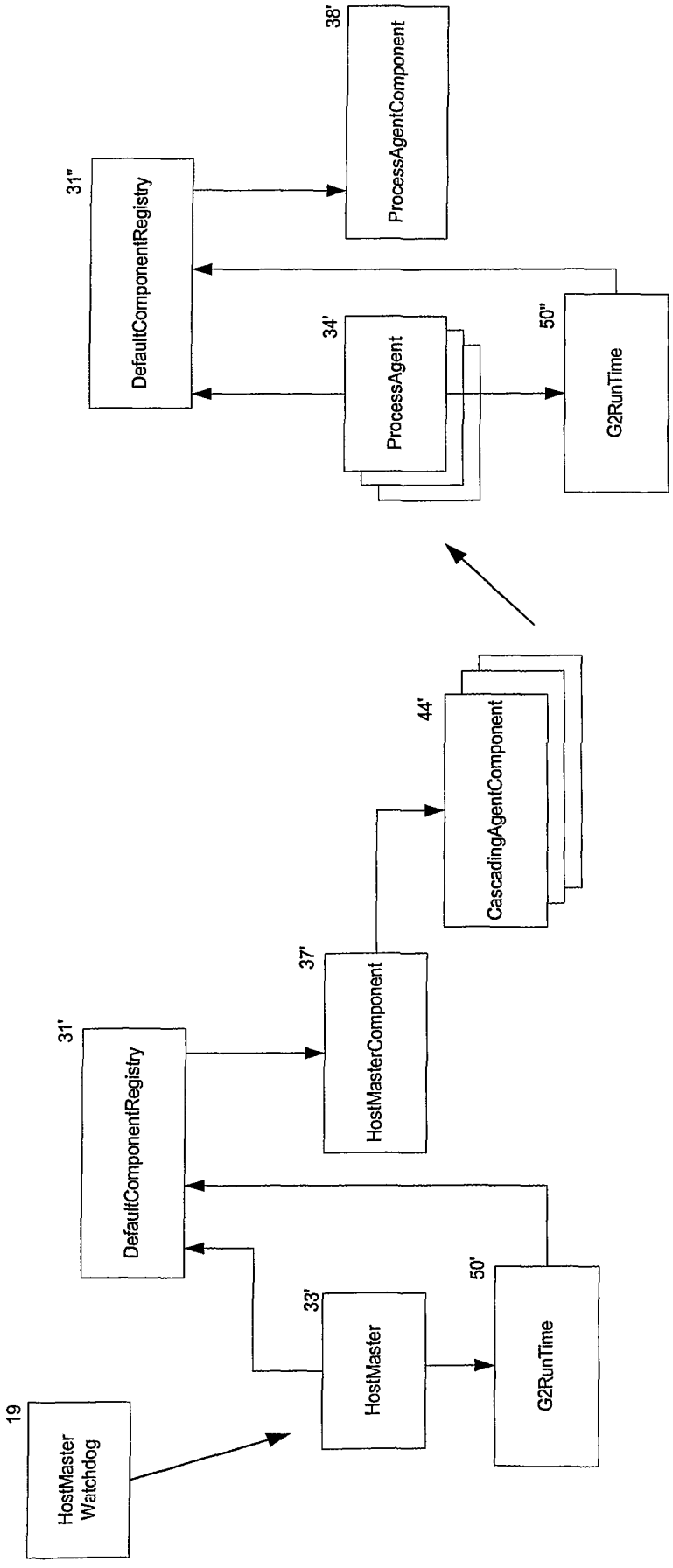

19
HostMaster Watchdog
33'
HostMaster
50'
G2RunTime
31'
DefaultComponentRegistry
37'
HostMasterComponent
44'
CascadingAgentComponent
31"
DefaultComponentRegistry
38'
ProcessAgentComponent
34'
ProcessAgent
50"
G2RunTime

FIG 9

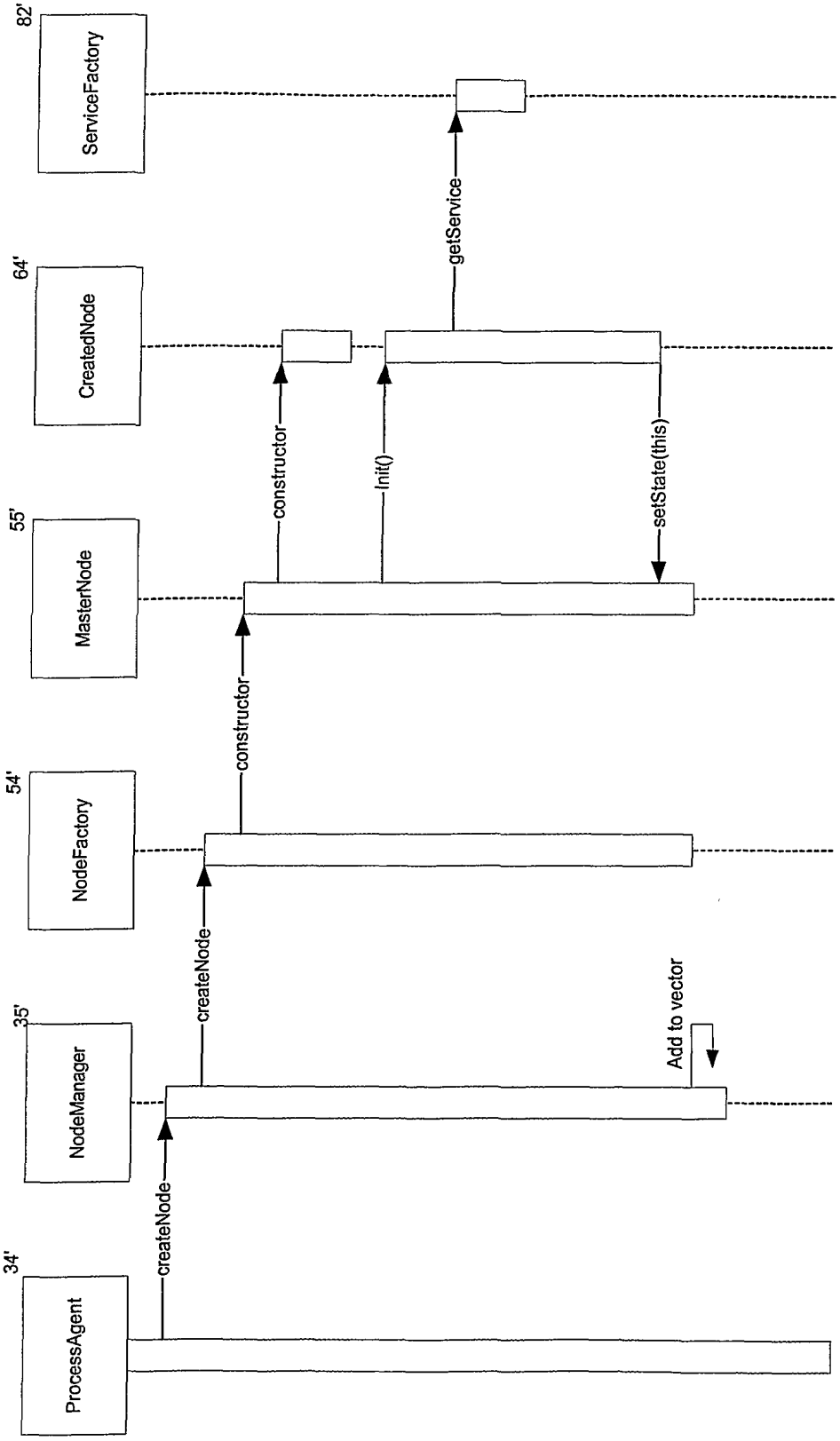

82'
ServiceFactory
64'
CreatedNode
55'
MasterNode
54'
NodeFactory
35'
NodeManager
34'
ProcessAgent
getService
constructor
Init()
setState(this)
constructor
createNode
createNode
Add to vector

FIG 10

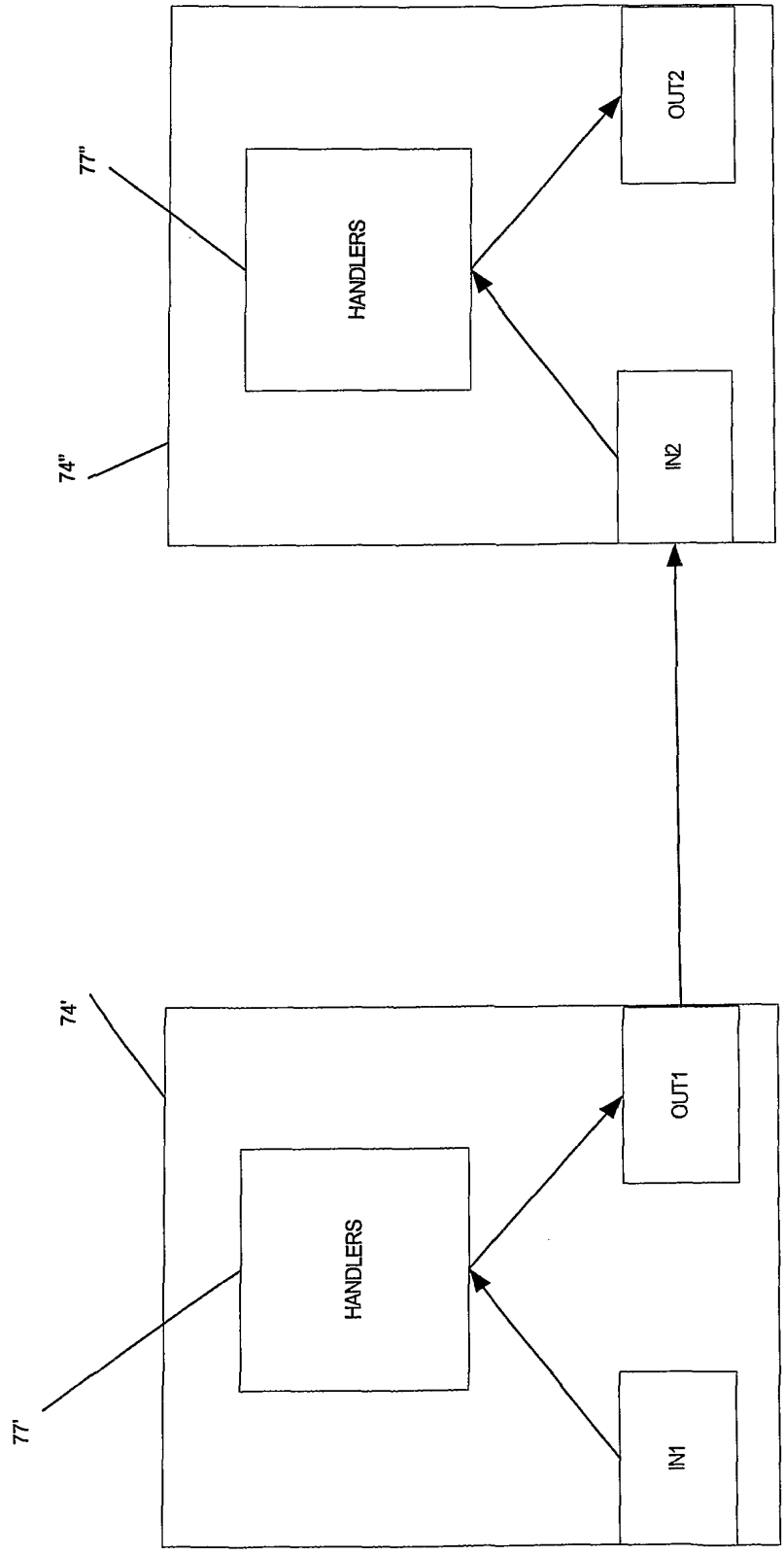


FIG 11A

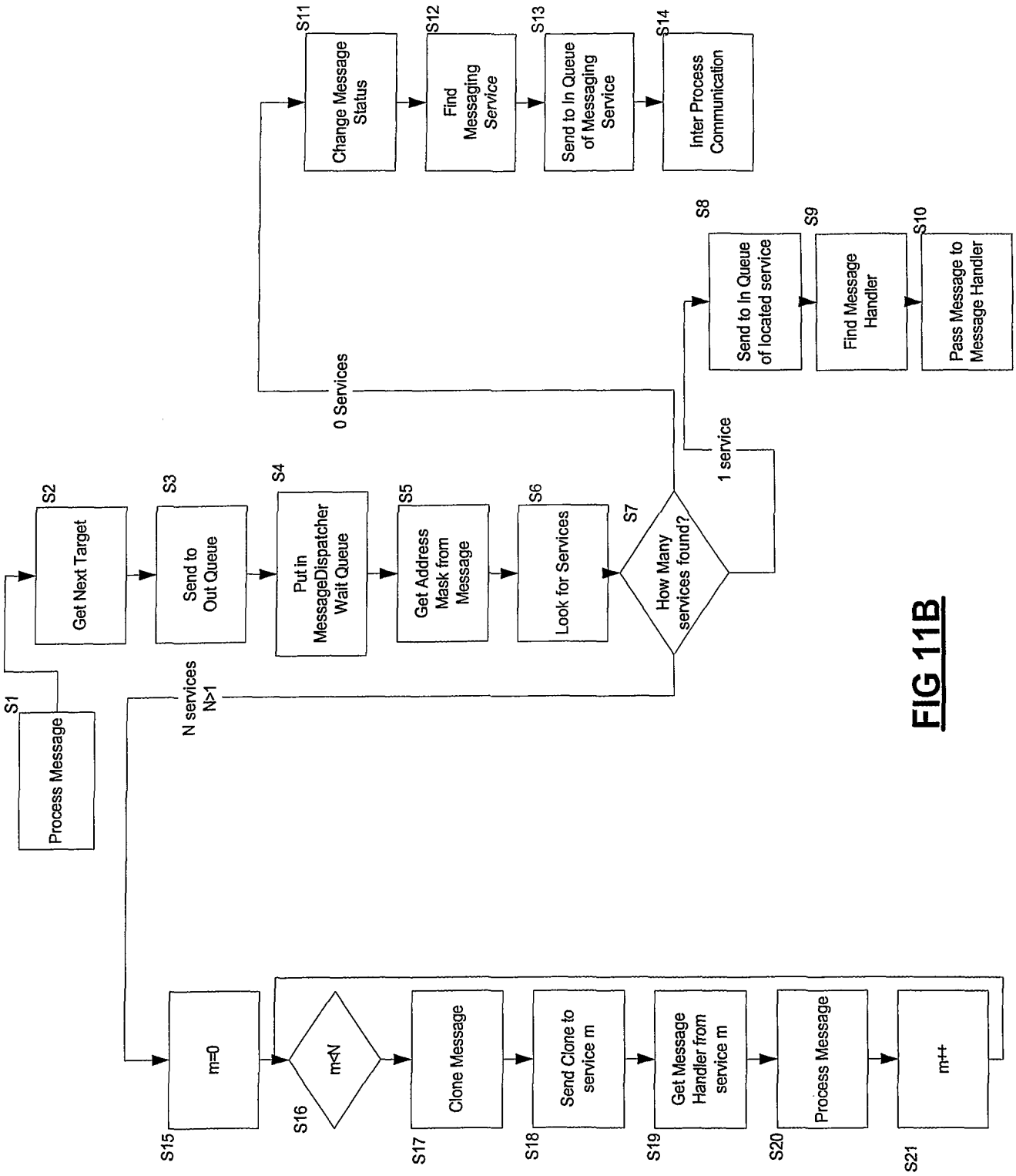

S1
Process Message
S2
Get Next Target
S3
Send to Out Queue
S4
Put in MessageDispatcher Wait Queue
S5
Get Address Mask from Message
S6
Look for Services
S7
How Many services found?
N services N>1
1 service
0 Services
S8
Send to In Queue of located service
S9
Find Message Handler
S10
Pass Message to Message Handler
S11
Change Message Status
S12
Find Messaging Service
S13
Send to In Queue of Messaging Service
S14
Inter Process Communication
S15
m=0
S16
m<N
S17
Clone Message
S18
Send Clone to service m
S19
Get Message Handler from service m
S20
Process Message
S21
m++

FIG 11B

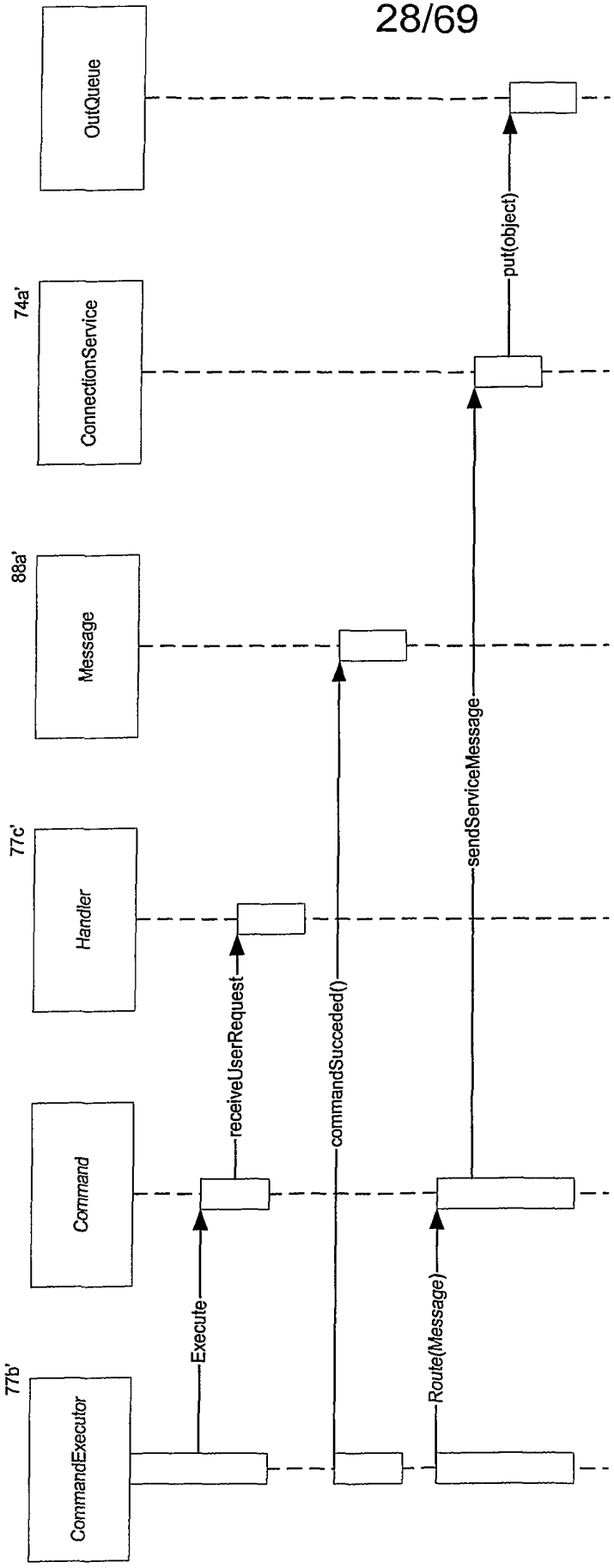

OutQueue
74a'
ConnectionService
88a'
Message
77c'
Handler
Command
77b'
CommandExecutor
put(object)
sendServiceMessage
receiveUserRequest
commandSucceeded()
Execute
Route(Message)

FIG 12A

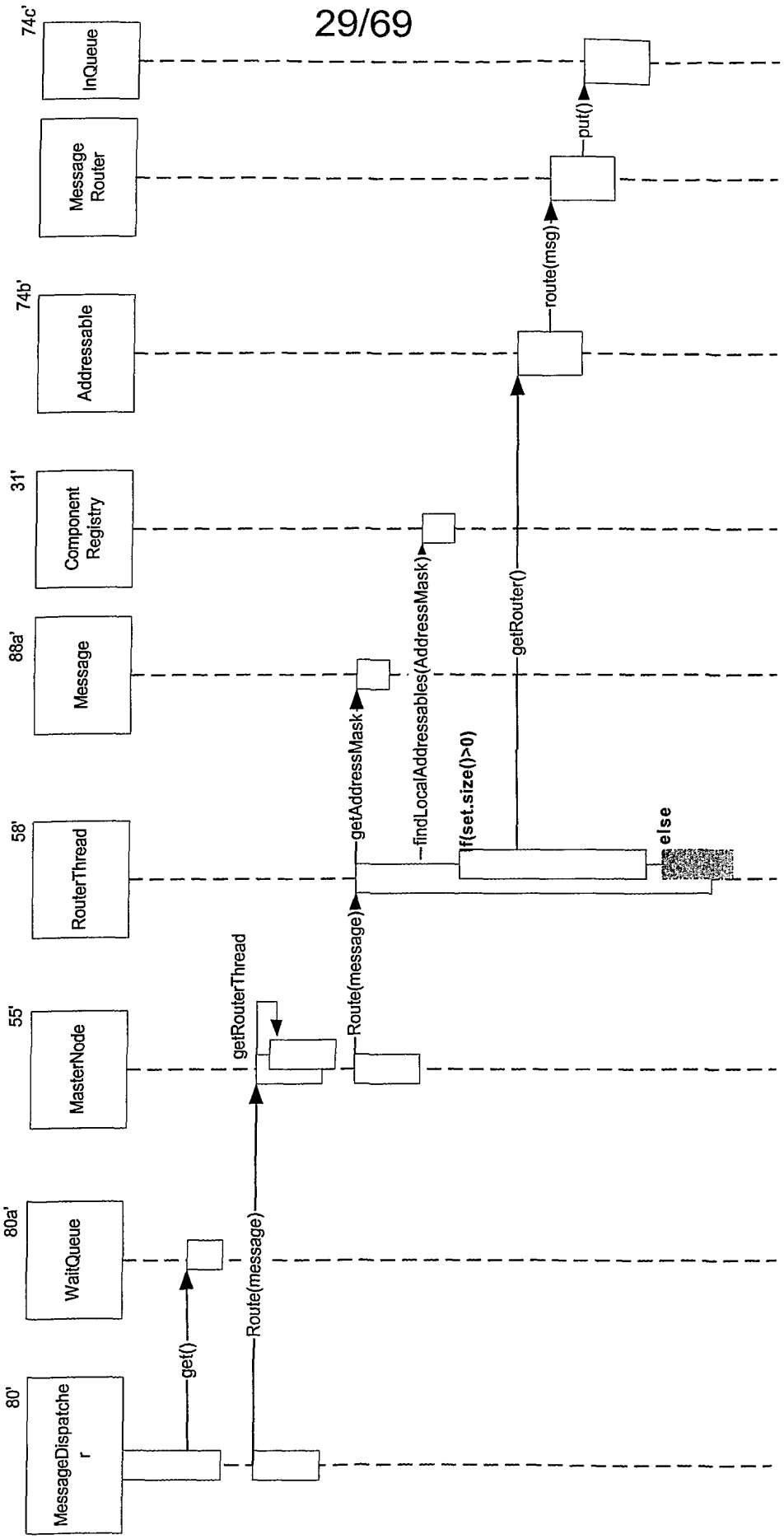

74c'
InQueue
Message Router
74b'
Addressable
31'
Component Registry
88a'
Message
58'
RouterThread
55'
MasterNode
80a'
WaitQueue
80'
MessageDispatcher
get()
Route(message)
getRouterThread
Route(message)
getAddressMask
findLocalAddressables(AddressMask)
if(set.size()>0)
else
getRouter()
route(msg)
put()

FIG 12B

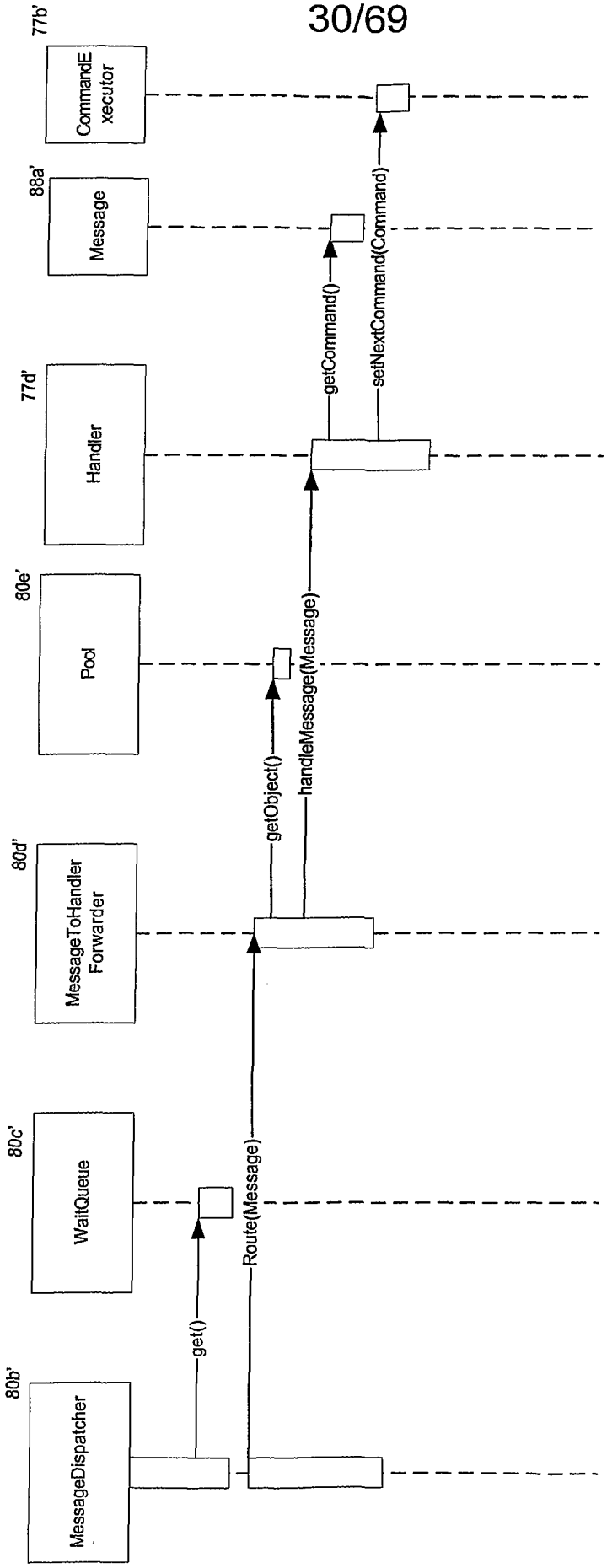

77b'
CommandExecutor
88a'
Message
77d'
Handler
80e'
Pool
80d'
MessageToHandler Forwarder
80c'
WaitQueue
80b'
MessageDispatcher
get()
Route(Message)
getObject()
handleMessage(Message)
getCommand()
setNextCommand(Command)

FIG 12C

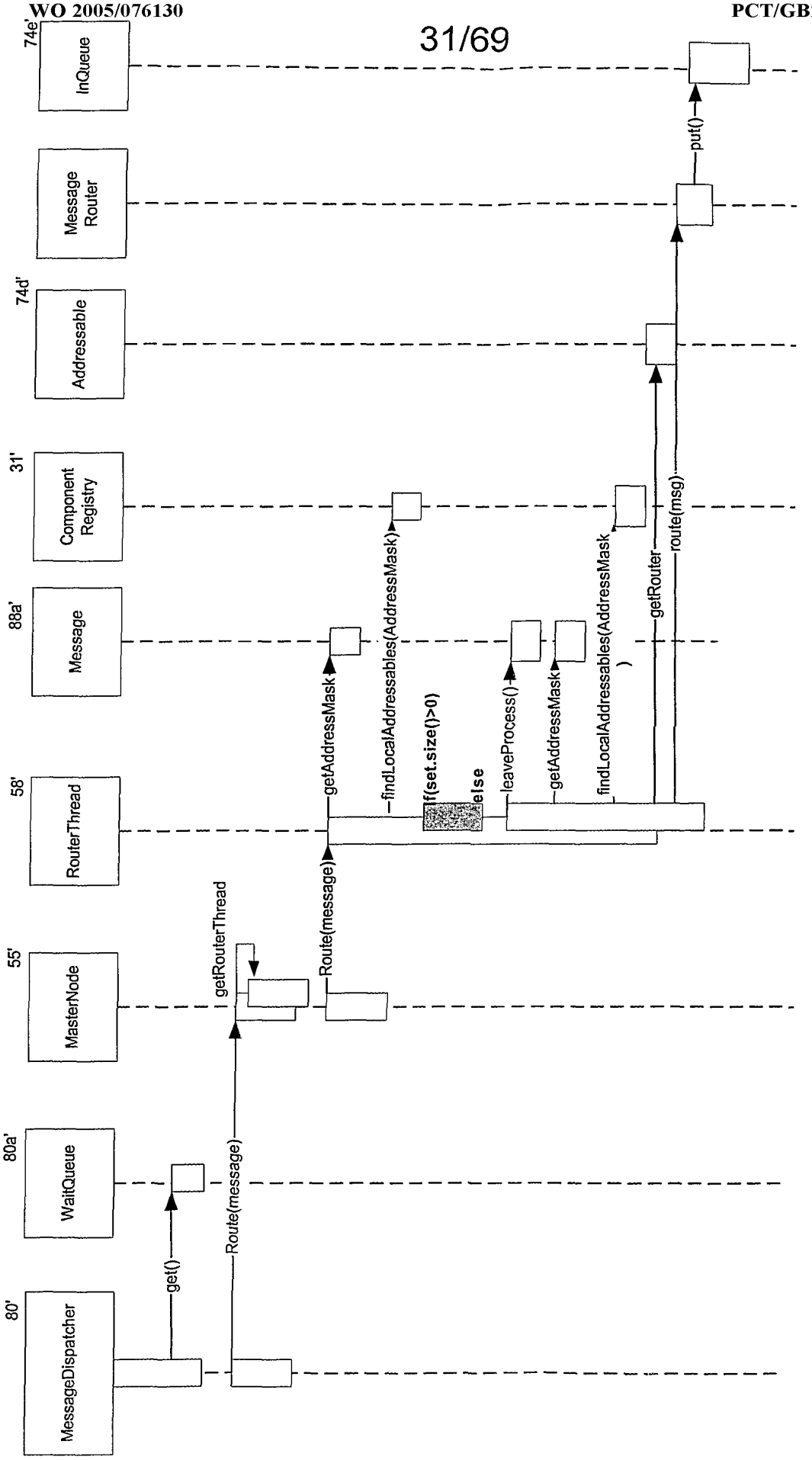

74e'
InQueue
Message Router
74d'
Addressable
31'
Component Registry
88a'
Message
58'
RouterThread
55'
MasterNode
80a'
WaitQueue
80'
MessageDispatcher
put()
route(msg)
getRouter
findLocalAddressables(AddressMask)
)
getAddressMask
leaveProcess()
if(set.size()>0)
else
findLocalAddressables(AddressMask)
getAddressMask
getRouterThread
Route(message)
get()
Route(message)

FIG 12D

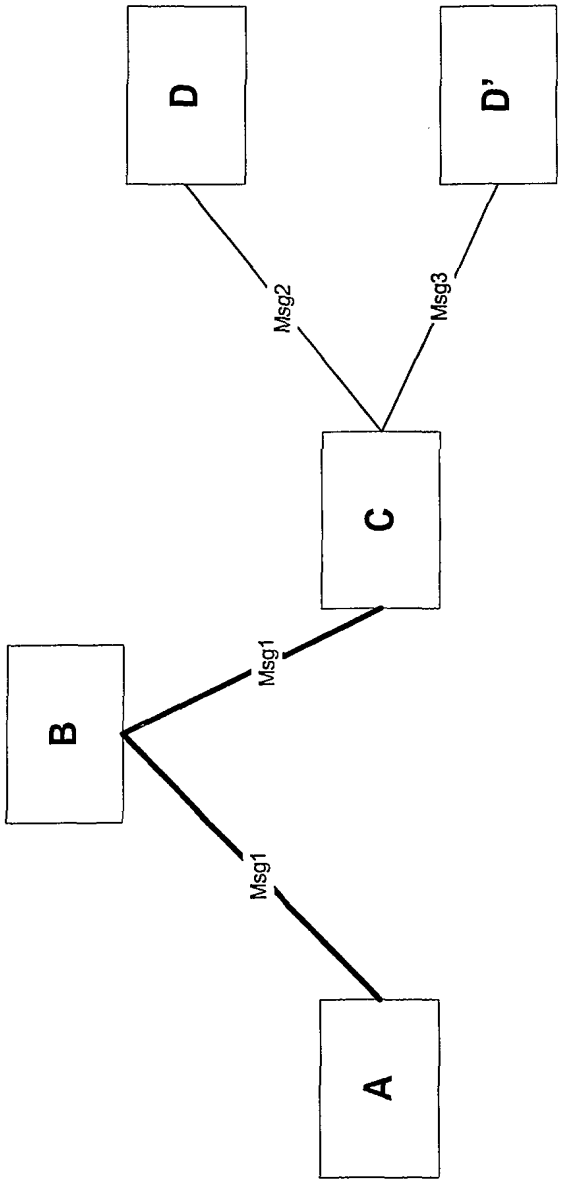


FIG 13

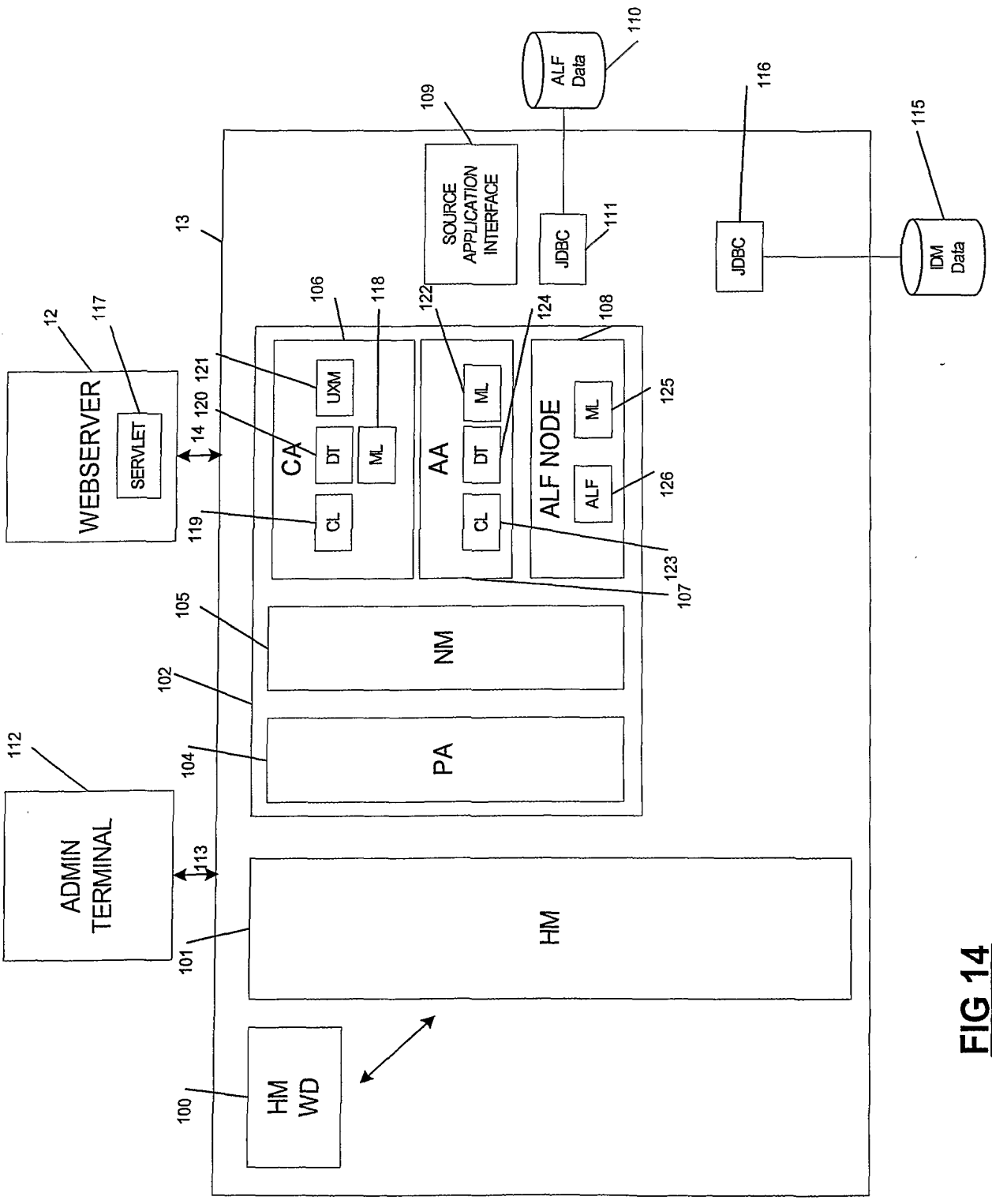

ALF Data
110
109
116
115
SOURCE APPLICATION INTERFACE
JDBC
111
JDBC
IDM Data
13
106
118
122
124
108
12
117
121
120
14
WEBSERVER
SERVLET
UXM
DT
ML
CA
AA
ML
DT
ALF NODE
ML
125
ALF
126
119
CL
CL
123
107
105
NM
102
PA
104
112
ADMIN TERMINAL
113
HM
101
HM WD
100

FIG 14

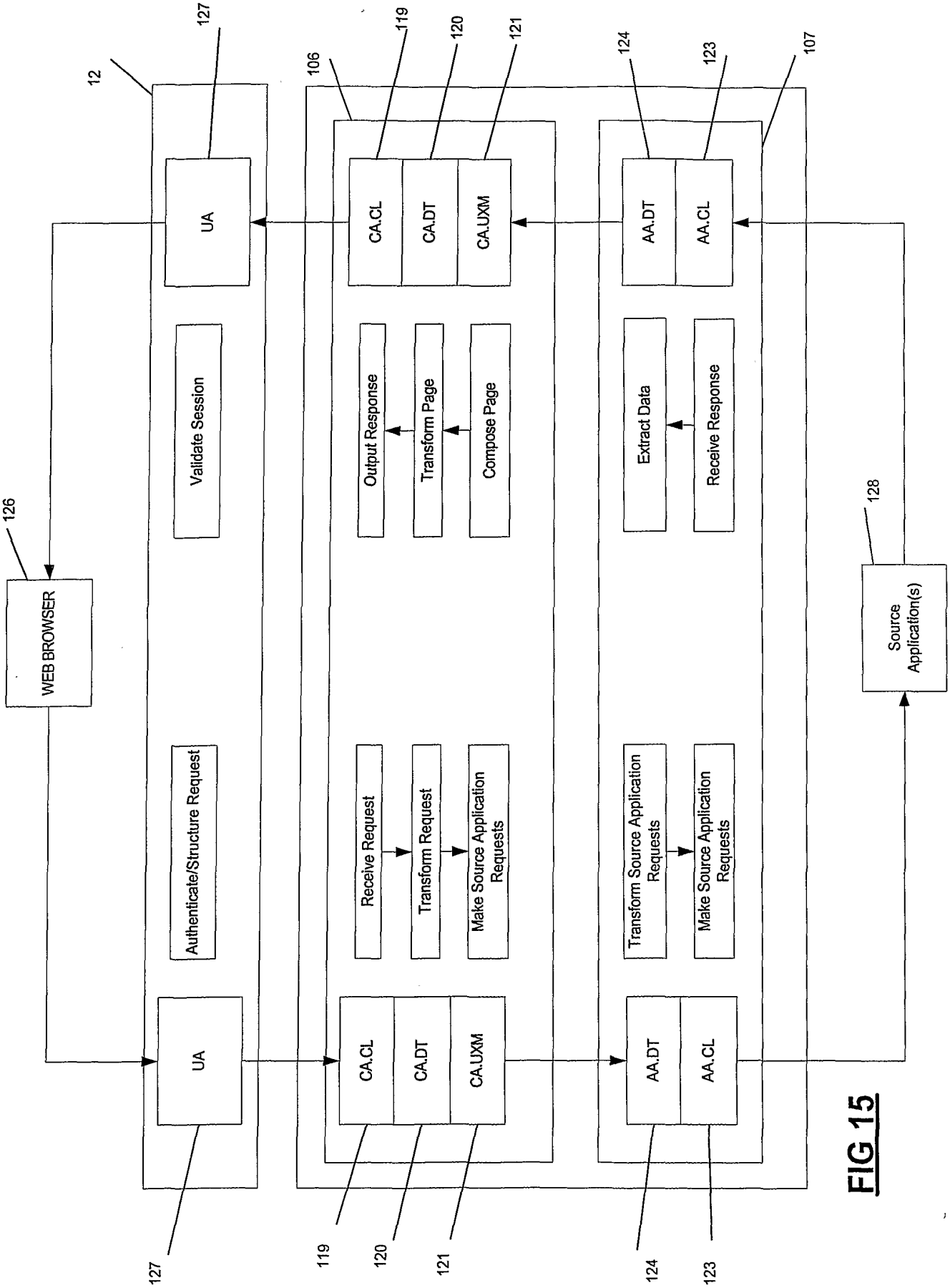

12
127
106
119
120
121
124
123
107
126
128
WEB BROWSER
UA
Validate Session
CA.CL
CA.DT
CA.UXM
AA.DT
AA.CL
Output Response
Transform Page
Compose Page
Extract Data
Receive Response
Source Application(s)
Authenticate/Structure Request
Receive Request
Transform Request
Make Source Application Requests
Transform Source Application Requests
Make Source Application Requests
UA
CA.CL
CA.DT
CA.UXM
AA.DT
AA.CL
127
119
120
121
124
123

FIG 15

Parameter	Req.	Type	Values	Notes
g2jms.config	Y	Str		File containing the jms configuration properties for the Listener e.g. g2jms.config=c:\conf\jms.properties
g2listener	Y	Str		This is the name of the node under the UAconfigs node in the IDM containing the listener configuration. e.g. g2listener=weblistener
g2config.instance	Y	Str		Node in the IDM that has an instance definition for the Composite Application. [shouldn't be necessary but is in current release e.g. g2config.instance=googleweb
g2config.home	Y	Str		**Directory** containing the IDM properties file for the Composer/Listener. This has to point to a directory containing the file rather than the file. e.g. g2config.home=c:\GCP\2.3.0\conf
g2tracer.conf	Y	Str		File containing the logger configuration for the Listener. e.g. g2tracer.conf=c:\conf\listenerlog.conf

FIG 16

Parameter	Req.	Type	Values	Notes
G2config.home	Y	Str		**Directory** containing the IDM properties file for the Composer/Listener. This has to point to a directory *containing the 'IDM.properties' file rather than the file itself* e.g. g2config.home=c:\GCP2.3.0\conf
g2config.instance	Y	Str		Node in the IDM that has an instance definition for the *Composite Application.* e.g. g2config.instance=googleweb
g2config.webhost	Y	Str		Host-name (or IP address) and port, of the Web Server used with the Listener. Used to rewrite the pages served up through the composer to point back to the listener. e.g. g2config.webhost=192.168.1.229:80
g2config.baseipport	Y	Str		Specify the Admin console port e.g. g2config.baseipport=8080
g2jms.config	Y	Str		File containing the jms configuration properties for the Composer e.g. g2jms.config=c:\conf\jms.properties
g2basetracer.conf	Y	Str		File name containing the logger configuration(s) for the *Listener – it will look for a file per process so there* needs to be at least a '0' and a '1' log file. e.g. g2tracer.conf=c:\conf\composerlog.conf

FIG 17

Name	Req.	Type	Values	Notes
APPLICATION_CLASS	Y	Str		Destination service for the **incominguserrequest** message that will be generated. This is the application class name used for the composite application.
UXM_MODIFIED	Y	Str	true/false	Set to true if the request is to be processed by the Composer. If false, then the UXM will not process the request and pass it on to the AA (pass through applications)
UXM_TREEID	Y	Str		The 'id' (from the control data-group) of the TreeRootNode targeted by this request.
UXM_NODEID	Y	Str		The 'id' (from the control data-group) of the TreeNode (within the hierarchy defined by UXM_TREEID) targeted by this request.

FIG 18

```
hm.g2config.baseIpport=9080
hm.rmiport=1299
hm.g2config.webhost=10.230.226.162
hm.g2config.instance=MyInstance
hm.g2jms.config=/usr/genient/composer/conf/jms.properties
hm.g2tracer.conf=/usr/genient/composer/conf/composer-log.properties
pa.x.Xms512m
pa.x.Xmx512m
pa.x.XX\:NewSize=64m
pa.x.XX\:MaxNewSize=64m
pa.x.XX\:+DisableExplicitGC
pa.x.g2config.webhost=10.230.226.162
pa.x.g2config.home=/usr/genient/composer/conf
pa.x.g2config.instance=MyInstance
pa.x.g2jms.config=/usr/genient/composer/conf/jms.properties
pa.x.g2tracer.conf=/usr/genient/composer/conf/composer-log.properties
pa.x.javax.net.ssl.trustStore=/usr/genient/j2re1_3_1_08/lib/security/g2cert
pa.x.javax.net.ssl.keyStoreType=pkcs12
pa.x.javax.net.ssl.keyStorePassword=thglrwtfos
pa.x.javax.net.ssl.keyStore=/usr/genient/j2re1_3_1_08/lib/security/xF8FF_2_XEG000004.p12
pa.x.java.protocol.handler.pkgs=HTTPClient
```

FIG 19

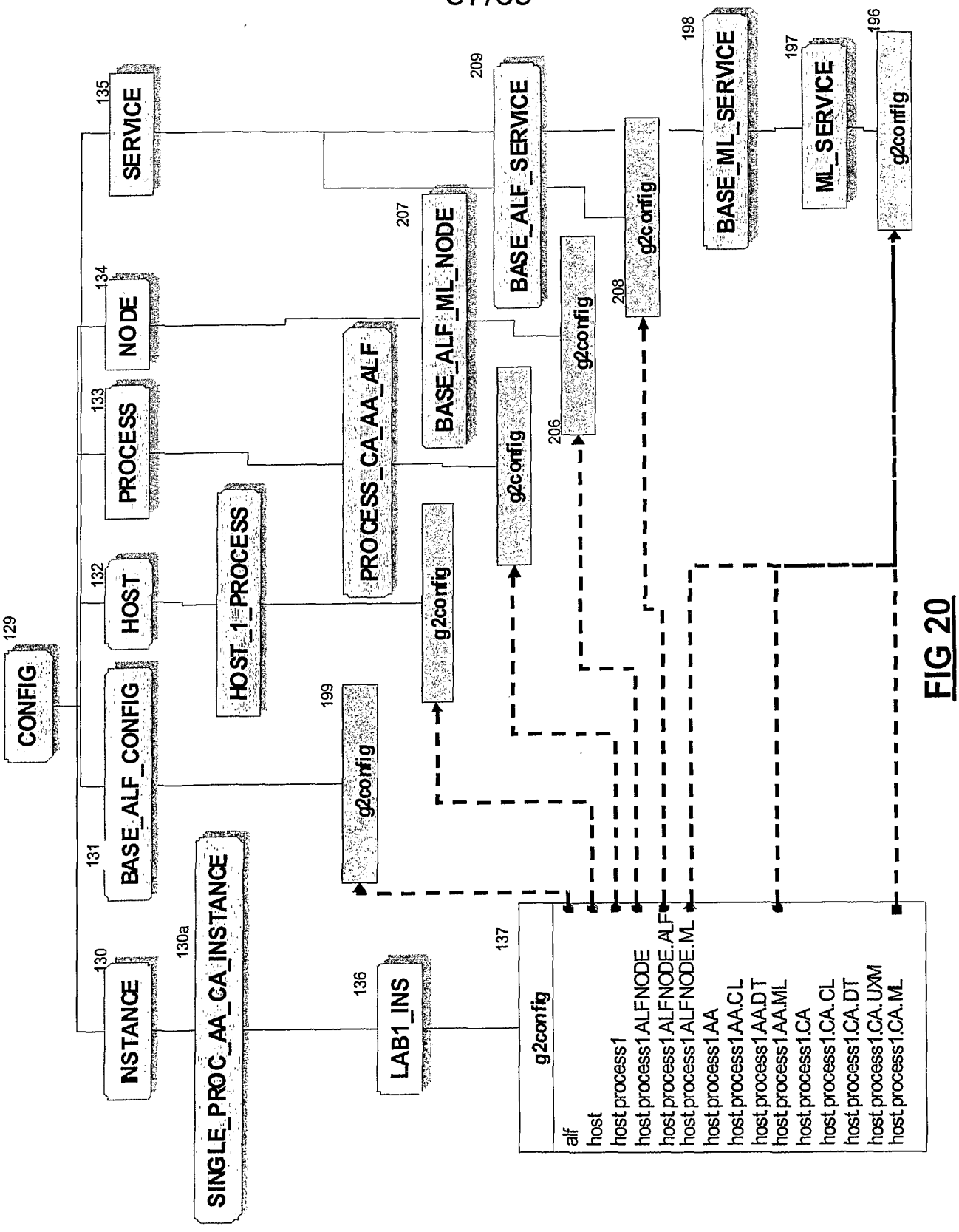

CONFIG
129
SERVICE
135
NODE
134
PROCESS
133
HOST
132
BASE_ALF_CONFIG
131
NSTANCE
130
SINGLE_PROC_AA_CA_INSTANCE
130a
HOST_1_PROCESS
PROCESS_CA_AA_ALF
BASE_ALF_ML_NODE
207
BASE_ALF_SERVICE
209
g2config
199
g2config
206
g2config
208
g2config
198
BASE_ML_SERVICE
197
ML_SERVICE
196
g2config
LAB1_INS
136
g2config
137
alf
host
host process1
host process1ALFNODE
host process1ALFNODE.ALF
host process1ALFNODE.ML
host process1AA
host process1AA.CL
host process1AA.DT
host process1AA.ML
host process1.CA
host process1.CA.CL
host process1.CA.DT
host process1.CA.UXM
host process1.CA.ML

FIG 20

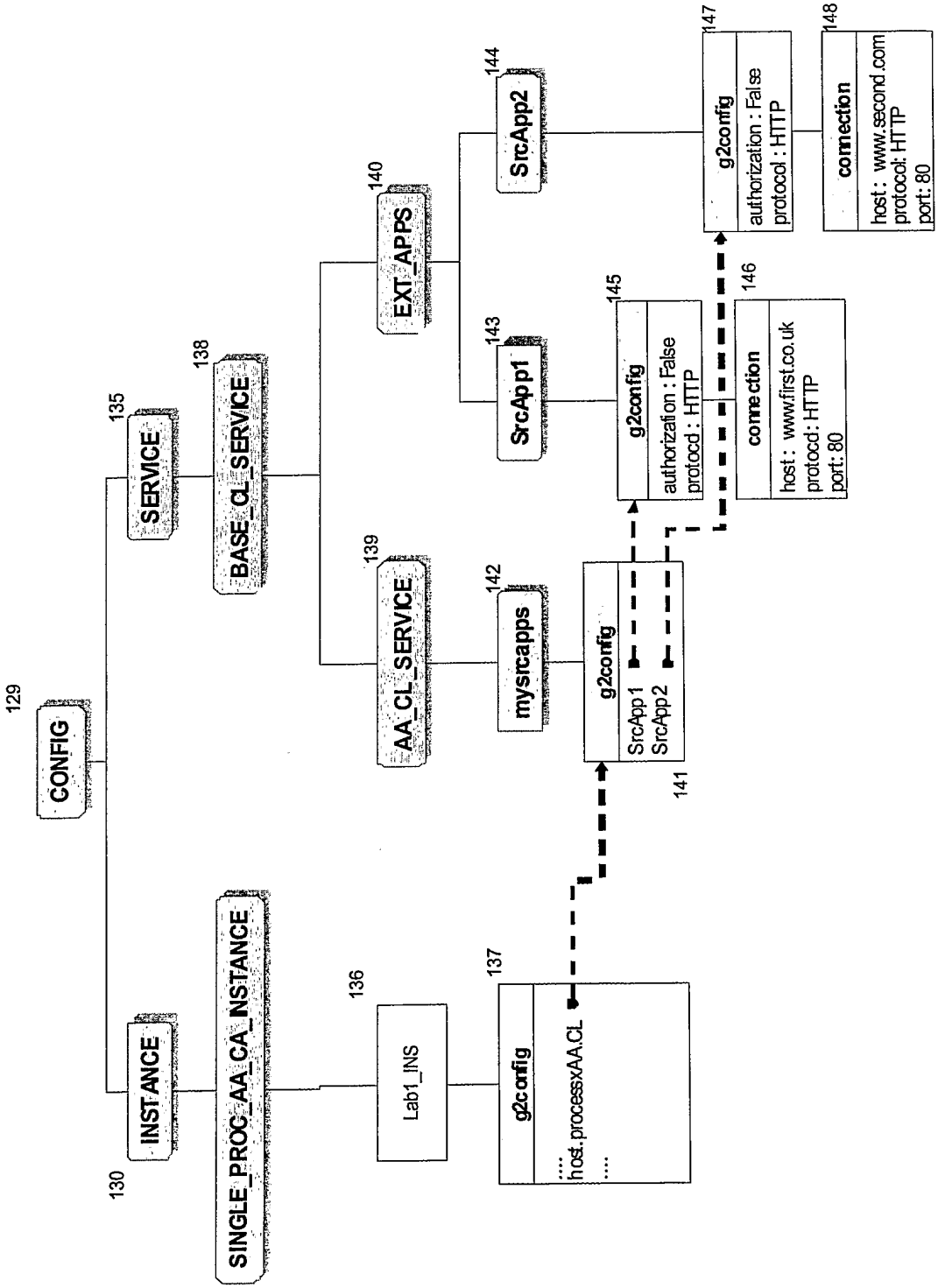

129
CONFIG
130
INSTANCE
SINGLE_PROC_AA_CA_INSTANCE
135
SERVICE
138
BASE_CL_SERVICE
136
Lab1_INS
137
g2config
....
host.processxAA.CL
....
139
AA_CL_SERVICE
140
EXT_APPS
142
mysrcapps
141
g2config
SrcApp1
SrcApp2
143
SrcApp1
144
SrcApp2
145
g2config
authorization : False
protocol : HTTP
146
connection
host : www.first.co.uk
protocol: HTTP
port: 80
147
g2config
authorization : False
protocol : HTTP
148
connection
host : www.second.com
protocol: HTTP
port: 80

FIG 21

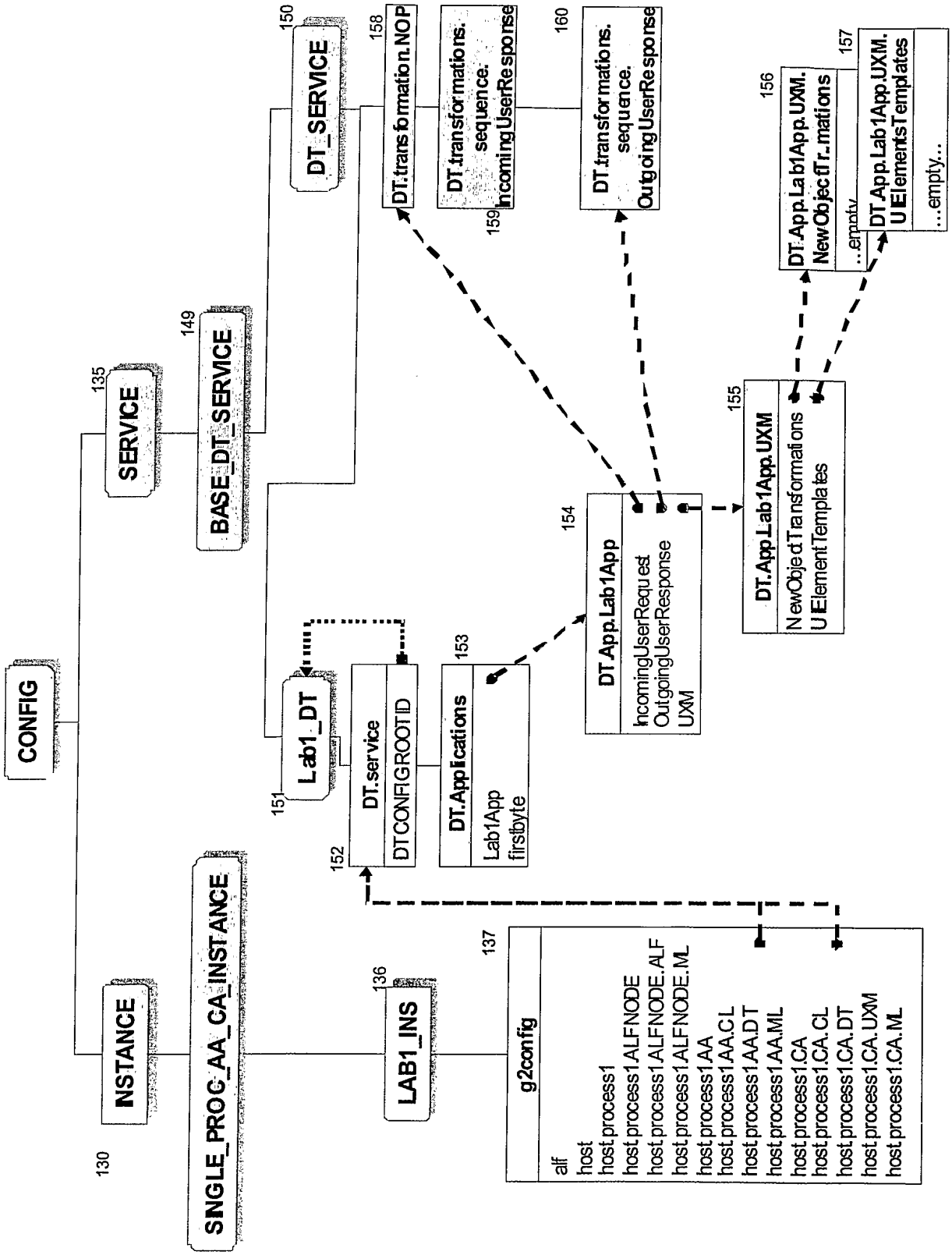

CONFIG
INSTANCE
SINGLE_PROG_AA_CA_INSTANCE
SERVICE
BASE_DT_SERVICE
DT_SERVICE
LAB1_INS
Lab1_DT
DT.service
DTCONFIGROOTID
DT.Applications
Lab1App
firstbyte
g2config
alf
host
host process1
host process1ALFNODE
host process1ALFNODE.ALF
host process1ALFNODE.ML
host process1AA
host process1AA.CL
host process1AA.DT
host process1AA.ML
host process1.CA
host process1.CA.CL
host process1.CA.DT
host process1.CA.UXM
host process1.CA.ML
DT.App.Lab1App
IncomingUserRequest
OutgoingUserResponse
UXM
DT.App.Lab1App.UXM
NewObjectTransformations
UElementTemplates
DT.transformation.NOP
DT.transformations.sequence.IncomingUserResponse
DT.transformations.sequence.OutgoingUserResponse
DT.App.Lab1App.UXM.NewObjectTr..mations
...empty
DT.App.Lab1App.UXM.UElementsTemplates
...empty...
130
135
136
137
149
150
151
152
153
154
155
156
157
158
159
160

FIG 22

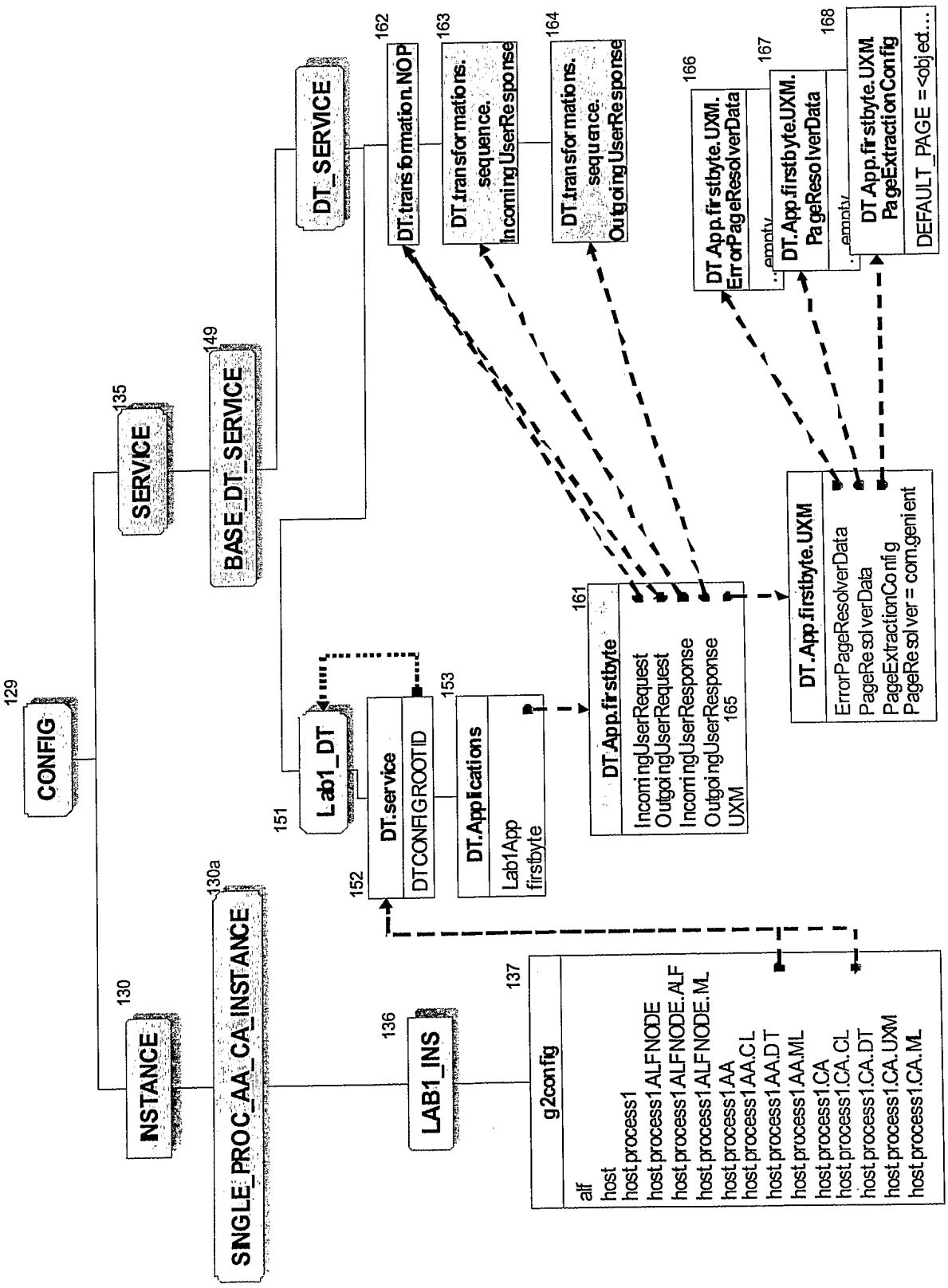

CONFIG
129
INSTANCE
130
SERVICE
135
SNGLE_PROC_AA_CA_INSTANCE
130a
BASE_DT_SERVICE
149
DT_SERVICE
LAB1_INS
136
g2config
137
alf
host
host.process1
host.process1.ALFNODE
host.process1.ALFNODE.ALF
host.process1.ALFNODE.ML
host.process1.AA
host.process1.AA.CL
host.process1.AA.DT
host.process1.AA.ML
host.process1.CA
host.process1.CA.CL
host.process1.CA.DT
host.process1.CA.UXM
host.process1.CA.ML
Lab1_DT
151
DT.service
DTCONFIGROOTID
152
DT.Applications
Lab1App
firstbyte
153
DT.App.firstbyte
IncomingUserRequest
OutgoingUserRequest
IncomingUserResponse
OutgoingUserResponse
UXM
161
DT.App.firstbyte.UXM
ErrorPageResolverData
PageResolverData
PageExtractionConfig
PageResolver = com.genient
DT.transformation.NOP
162
DT.transformations.sequence.IncomingUserResponse
163
DT.transformations.sequence.OutgoingUserResponse
164
DT.App.firstbyte.UXM.ErrorPageResolverData
empty
166
DT.App.firstbyte.UXM.PageResolverData
empty
167
DT.App.firstbyte.UXM.PageExtractionConfig
DEFAULT_PAGE = <object...
168

FIG 23

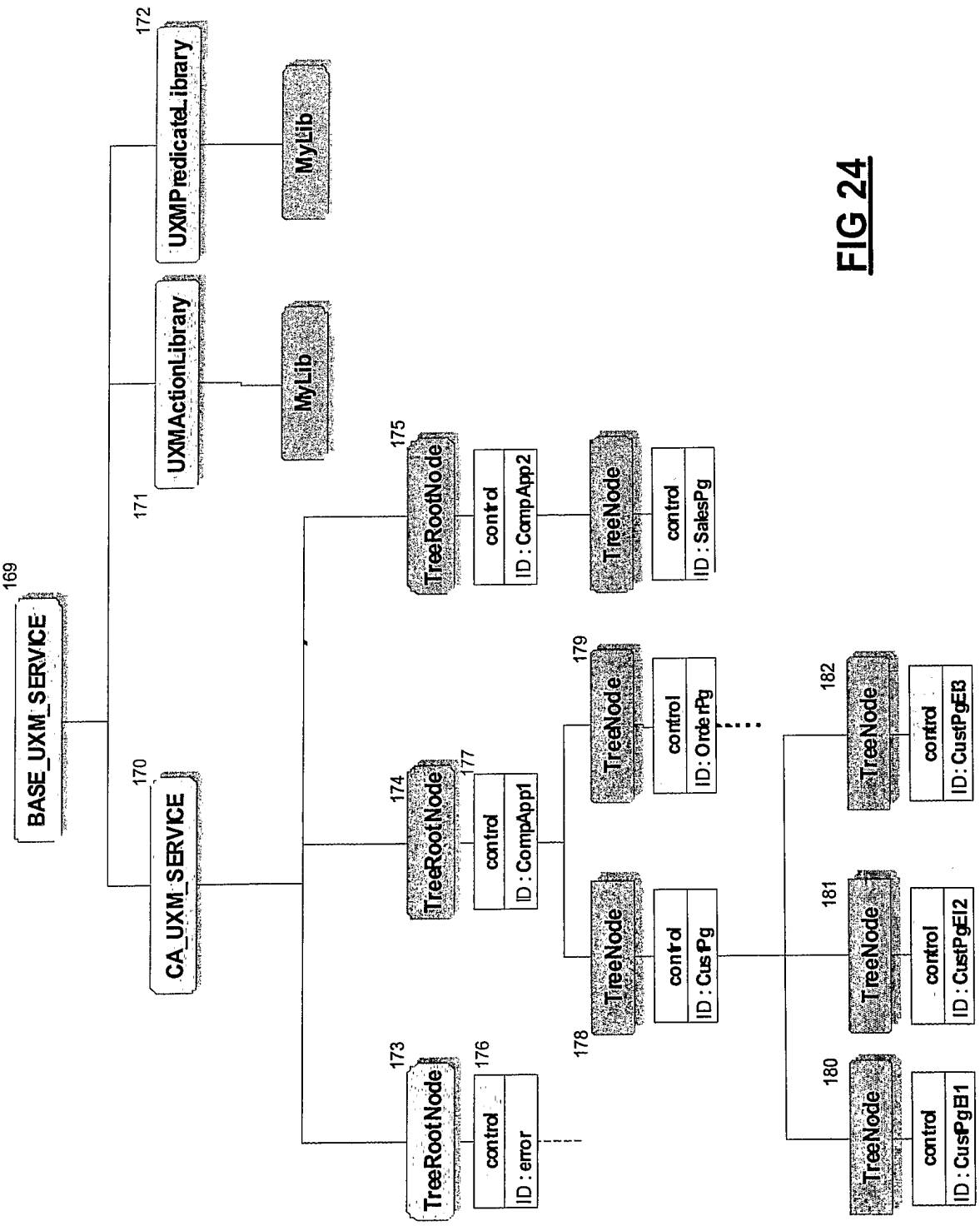

169
BASE_UXM_SERVICE
170
CA_UXM_SERVICE
171
UXMActionLibrary
MyLib
172
UXMPredicateLibrary
MyLib
173
TreeRootNode
control
ID : error
174
TreeRootNode
control
ID : CompApp1
175
TreeRootNode
control
ID : CompApp2
176
177
178
TreeNode
control
ID : CusPg
179
TreeNode
control
ID : OrderPg
180
TreeNode
control
ID : CustPgEl1
181
TreeNode
control
ID : CustPgEl2
182
TreeNode
control
ID : CustPgEl3

FIG 24

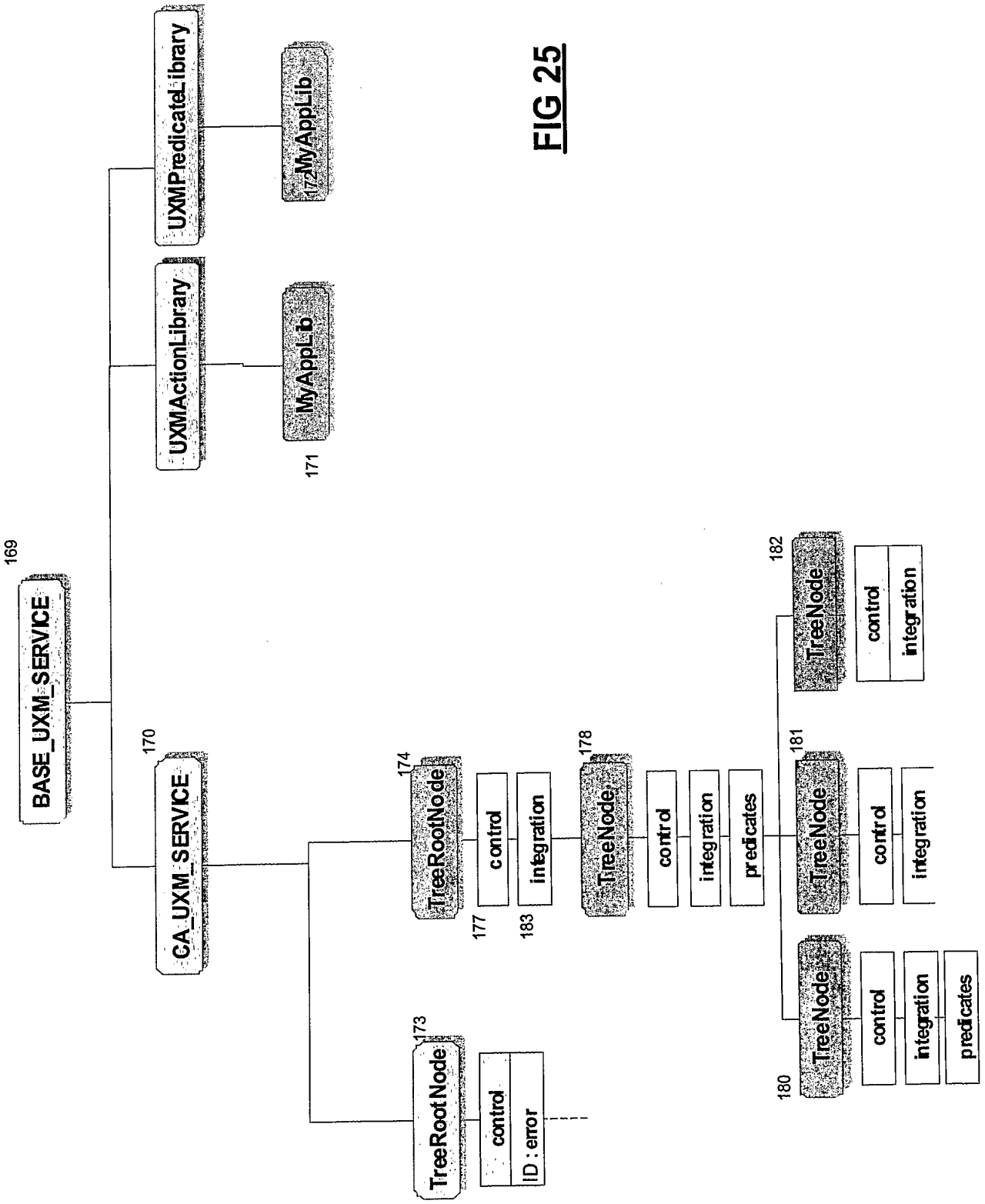

169
BASE_UXM_SERVICE
170
CA_UXM_SERVICE
UXMActionLibrary
UXMPredicateLibrary
171
MyAppLib
172
MyAppLib
TreeRootNode
173
control
ID : error
TreeRootNode
174
control
integration
177
183
TreeNode
178
control
integration
predicates
TreeNode
181
control
integration
TreeNode
182
control
integration
TreeNode
180
control
integration
predicates

FIG 25

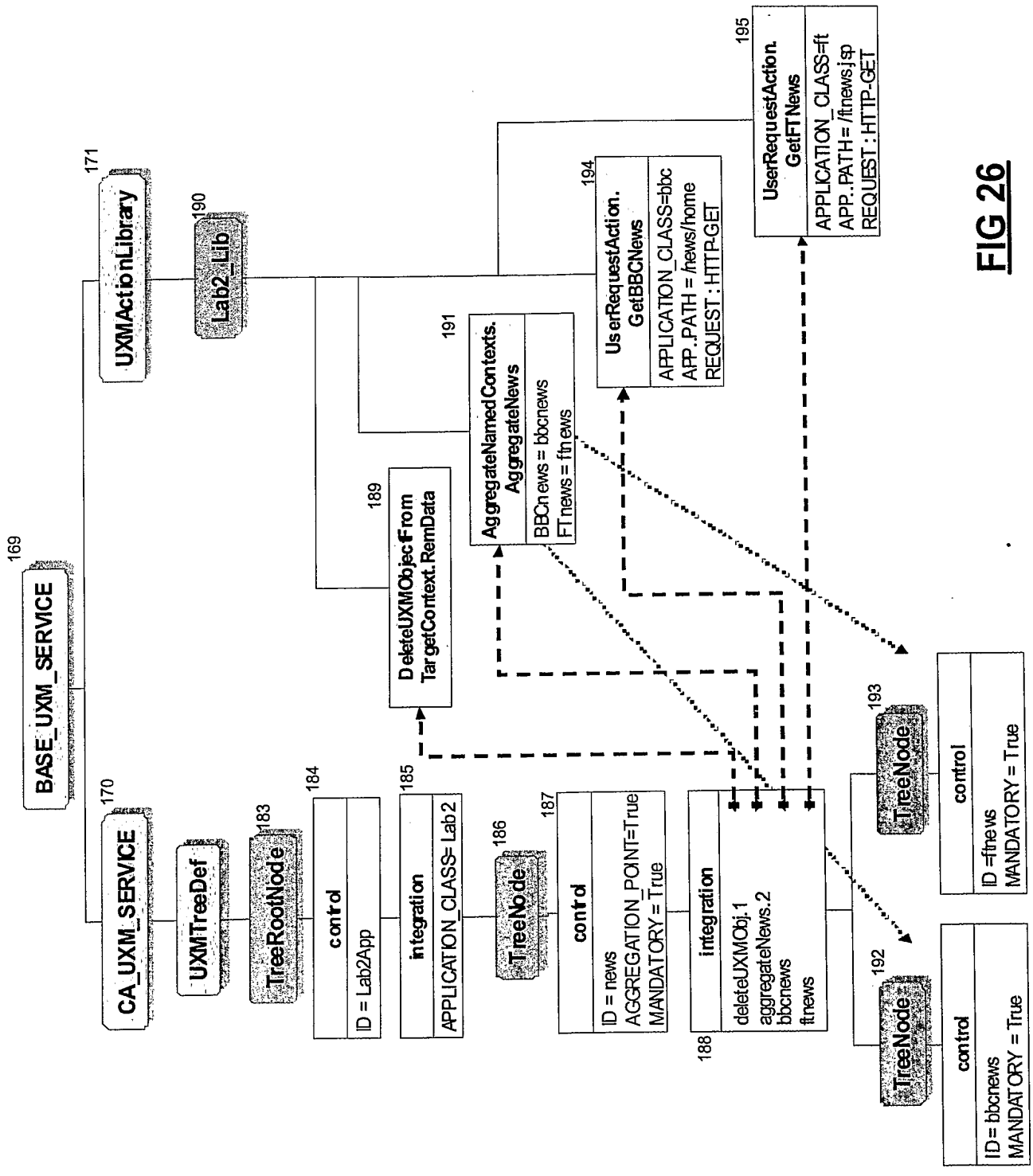

169
BASE_UXM_SERVICE
170
CA_UXM_SERVICE
UXMTreeDef
183
TreeRootNode
184
control
ID = Lab2App
185
integration
APPLICATION_CLASS= Lab2
186
TreeNode
187
control
ID = news
AGGREGATION_POINT=True
MANDATORY = True
188
integration
deleteUXMObj.1
aggregateNews.2
bbcnews
ftnews
192
TreeNode
control
ID= bbcnews
MANDATORY = True
193
TreeNode
control
ID =ftnews
MANDATORY = True
171
UXMActionLibrary
190
Lab2_Lib
189
DeleteUXMObjectFrom TargetContext.RemData
191
AggregateNamedContexts. AggregateNews
BBCnews = bbcnews
FTnews = ftnews
194
UserRequestAction. GetBBCNews
APPLICATION_CLASS=bbc
APP..PATH = /news/home
REQUEST : HTTP-GET
195
UserRequestAction. GetFTNews
APPLICATION_CLASS=ft
APP..PATH = /ftnews.jsp
REQUEST : HTTP-GET

FIG 26

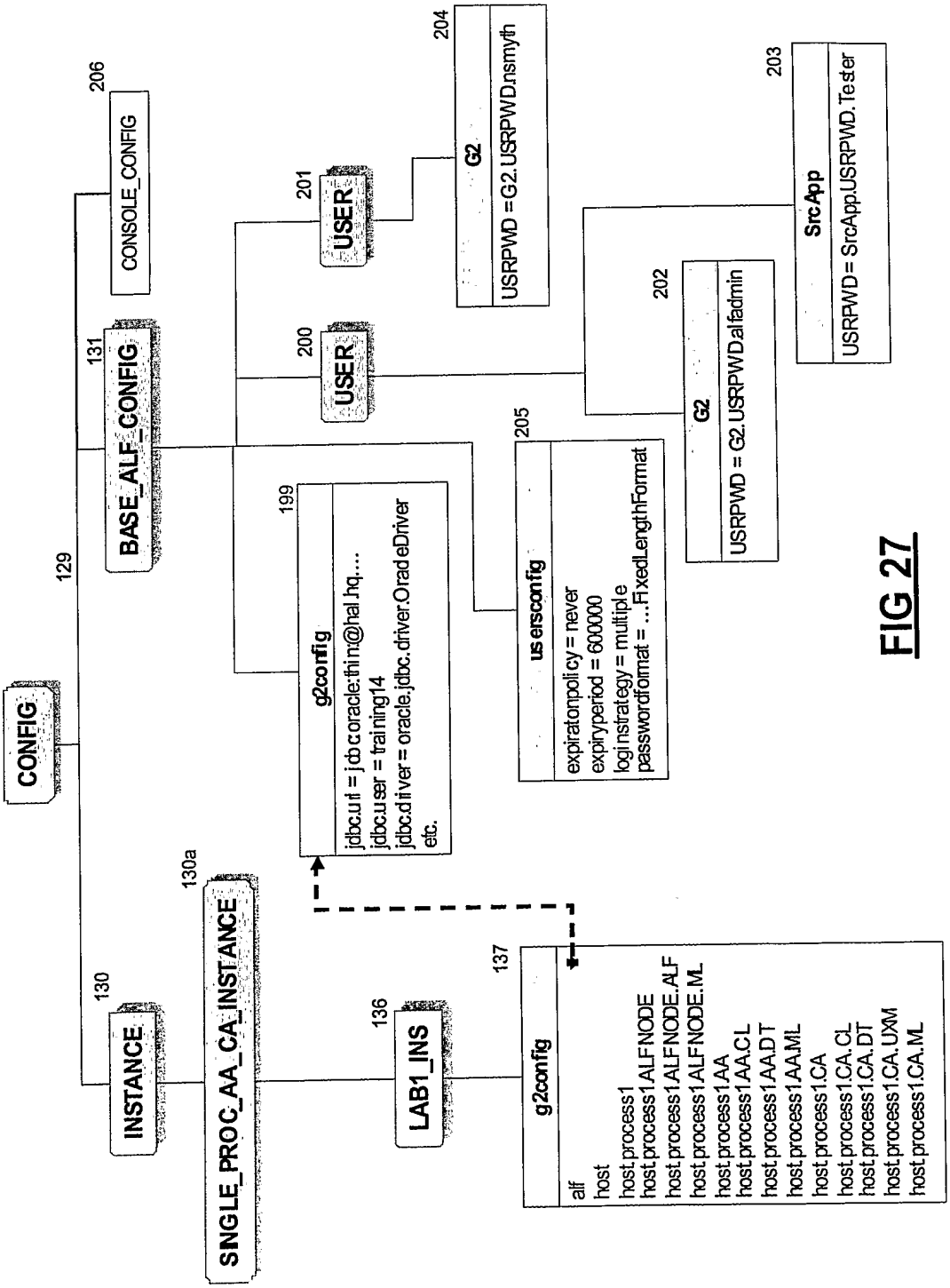

CONFIG
129
INSTANCE
130
SNGLE_PROC_AA_CA_INSTANCE
130a
LAB1_INS
136
g2config
137
alf
host
host.process1
host.process1.ALFNODE
host.process1.ALFNODE.ALF
host.process1.ALFNODE.ML
host.process1.AA
host.process1.AA.CL
host.process1.AA.DT
host.process1.AA.ML
host.process1.CA
host.process1.CA.CL
host.process1.CA.DT
host.process1.CA.UXM
host.process1.CA.ML
BASE_ALF_CONFIG
131
CONSOLE_CONFIG
206
g2config
199
jdbc.url = jdbc:oracle:thin:@hal.hq....
jdbc.user = training14
jdbc.driver = oracle.jdbc.driver.OracleDriver
etc.
USER
200
USER
201
usersconfig
205
expirationpolicy = never
expiryperiod = 600000
loginstrategy = multiple
passwordformat = ...FixedLengthFormat
G2
202
USRPWD = G2.USRPWD.alfadmin
G2
204
USRPWD = G2.USRPWD.nismyth
SrcApp
203
USRPWD = SrcApp.USRPWD.Tester

FIG 27

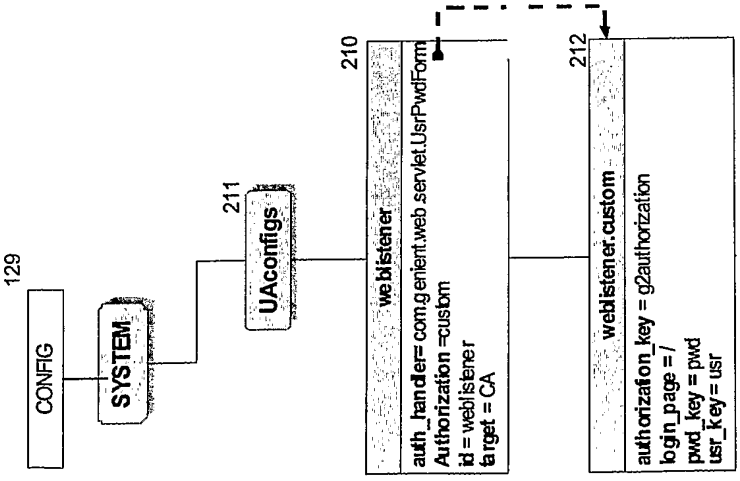


FIG 28

```
[CONFIG]
  [SERVICE]
    [BASE_CL_SERVICE]
      [CA_CL_SERVICE]
        [LABl_SrcApps]
          <g2config>
            {GRF} firstbyte =
[FirstByteCRM].g2config

        [EXT_APPS]
          [FirstByte]
            <g2config>
              {STR} authorization = false
              {STR} protocol = http
```

FIG 29

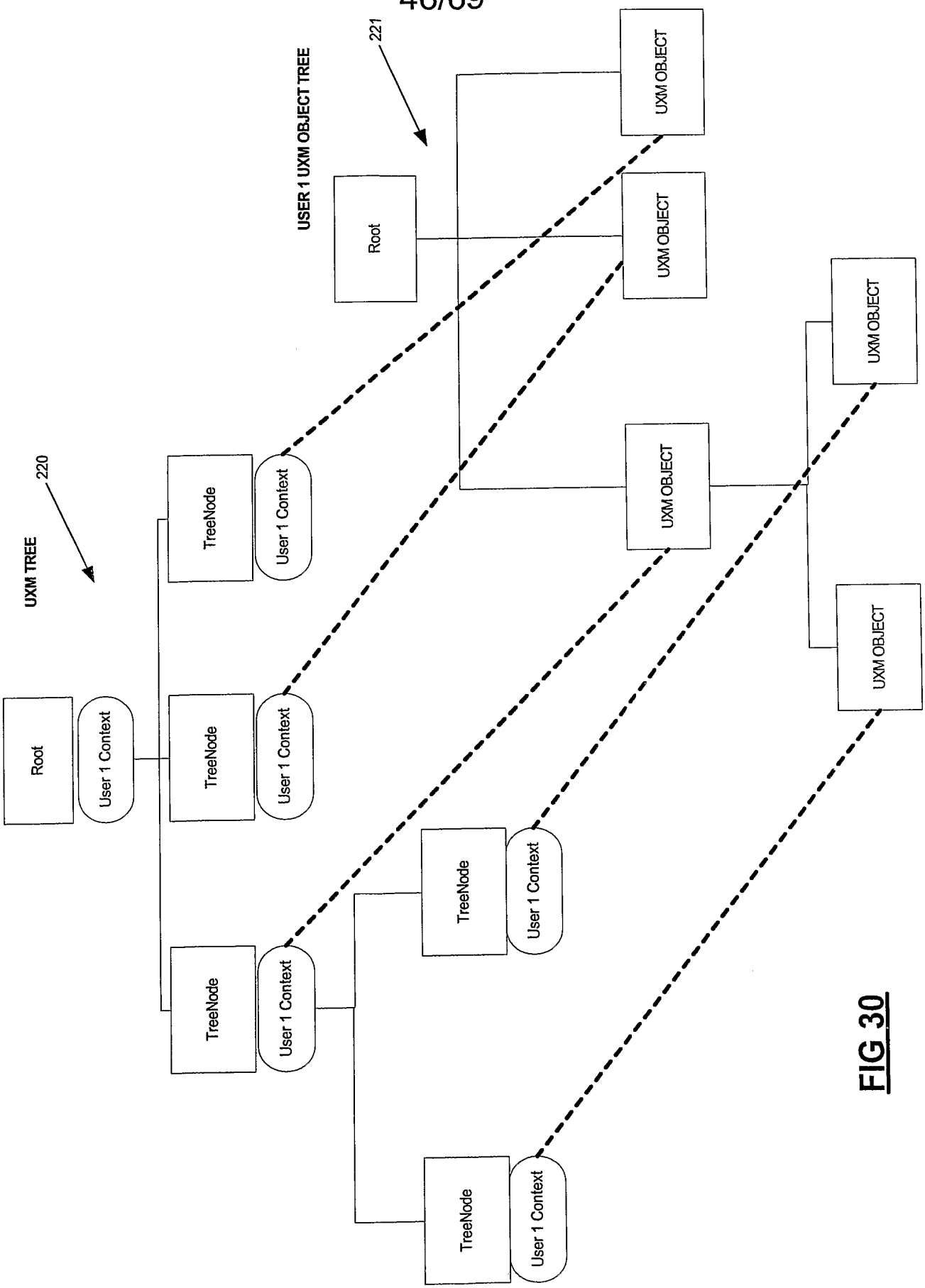

UXM TREE
220
Root
User 1 Context
TreeNode
User 1 Context
TreeNode
User 1 Context
TreeNode
User 1 Context
TreeNode
User 1 Context
USER 1 UXM OBJECT TREE
221
Root
UXM OBJECT
UXM OBJECT
UXM OBJECT
UXM OBJECT
UXM OBJECT

FIG 30

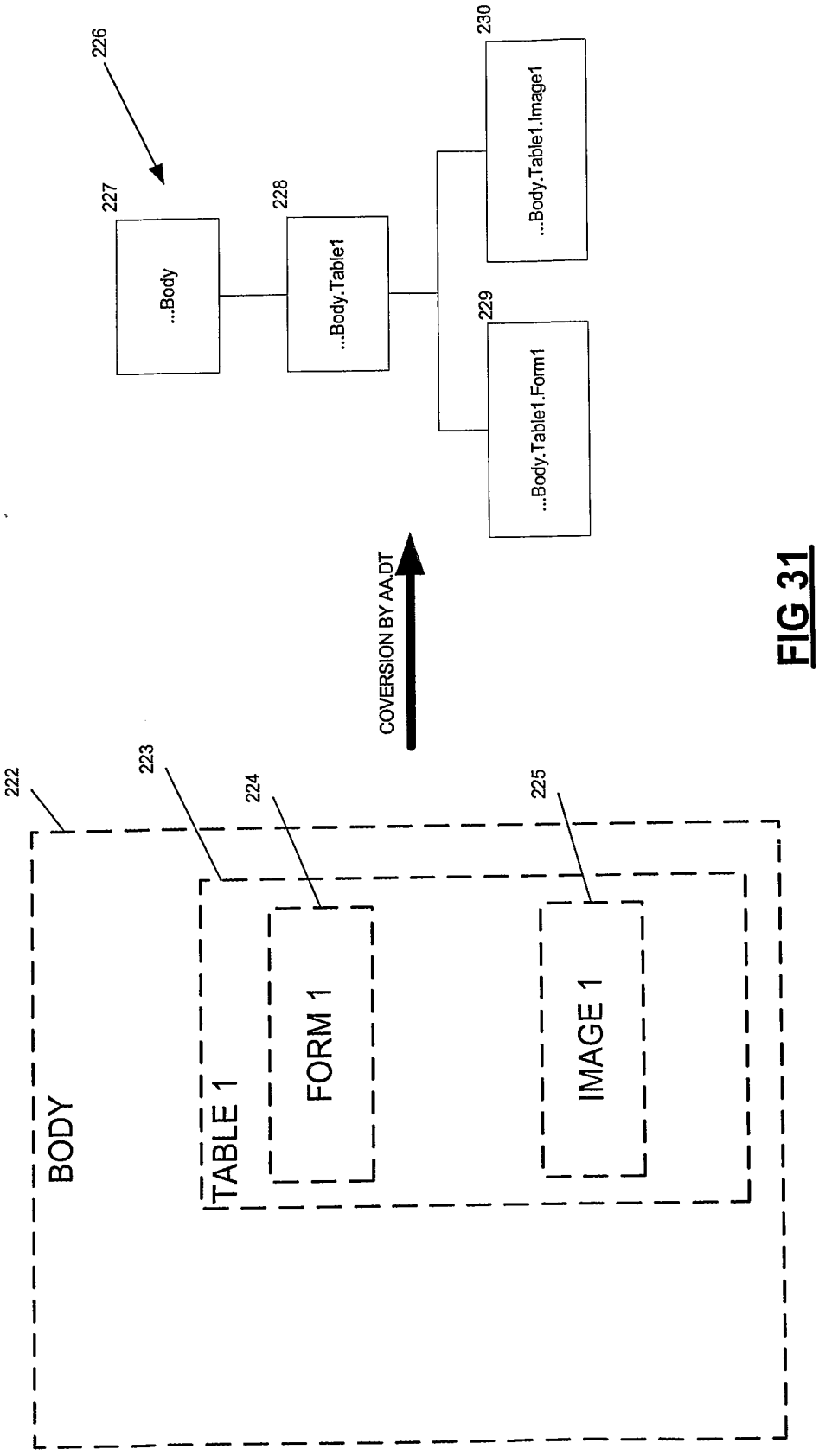

226
227
...Body
228
...Body.Table1
230
...Body.Table1.Image1
229
...Body.Table1.Form1
COVERSION BY AA.DT
222
223
224
225
BODY
TABLE 1
FORM 1
IMAGE 1

FIG 31

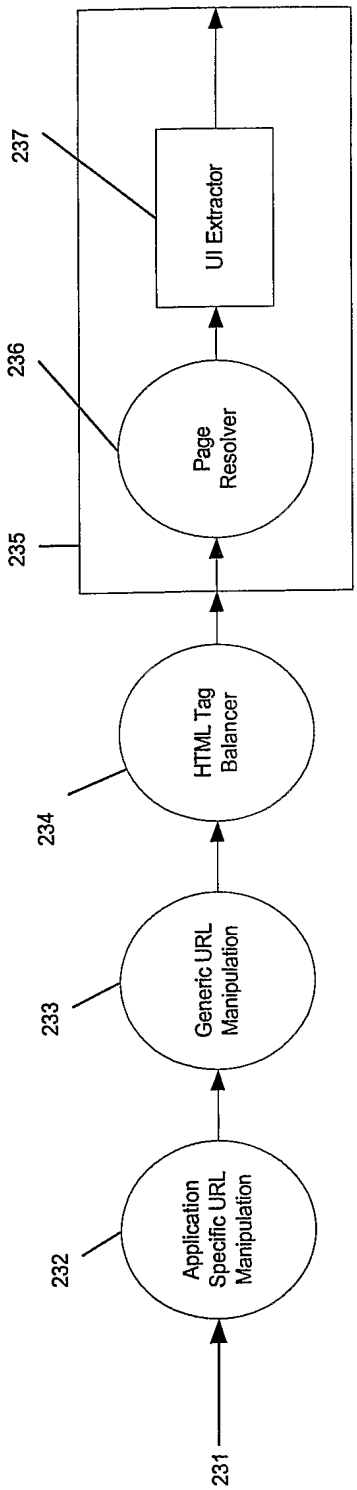


FIG 32

```
<html>
<form action="/G2/G2" method="POST">
<input type="hidden" name="APPLICATION_CLASS" value="Lab1App">
<input type="hidden" name="UXM_MODIFIED" value="true">
<input type="hidden" name="UXM_TREEID" value="Lab1App">
<input type="hidden" name="UXM_NODEID" value="CustPg">
.....
</html>
```

FIG 33

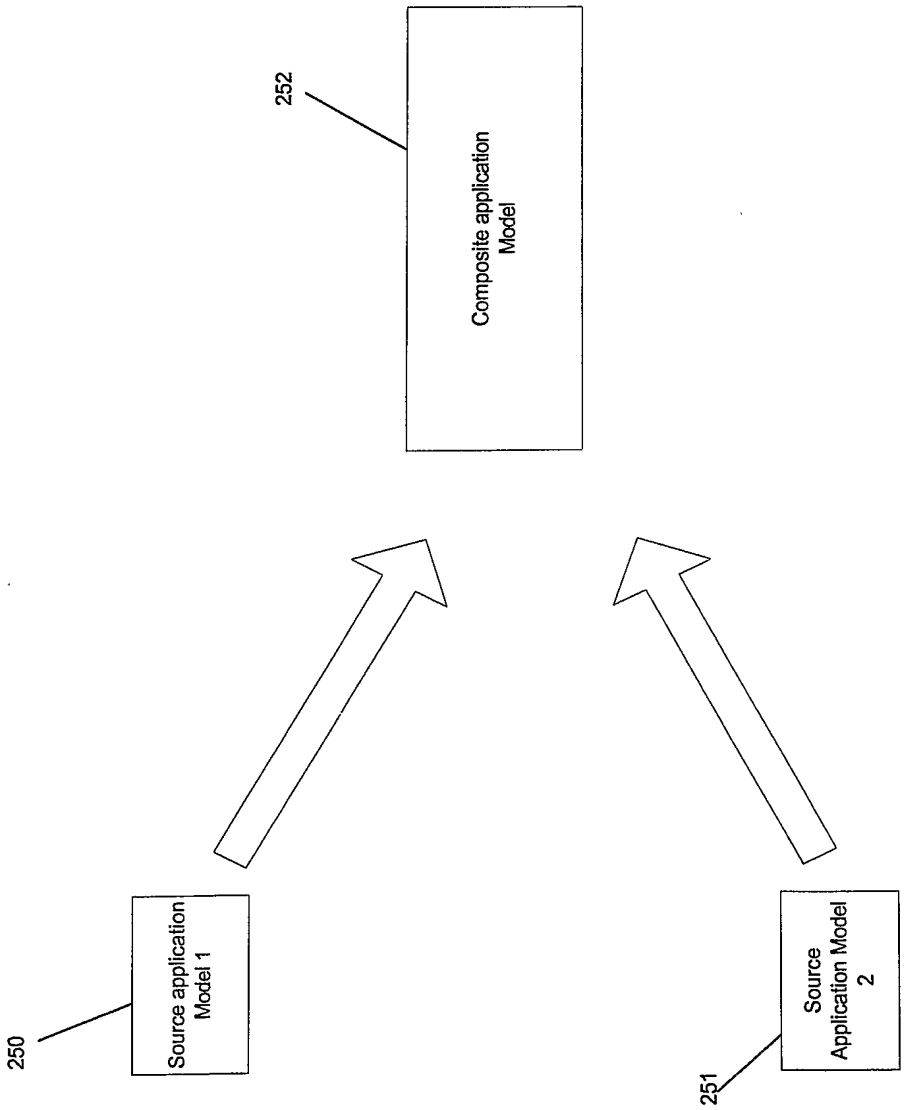

252
Composite application Model
Source application Model 1
250
Source Application Model 2
251

FIG 34

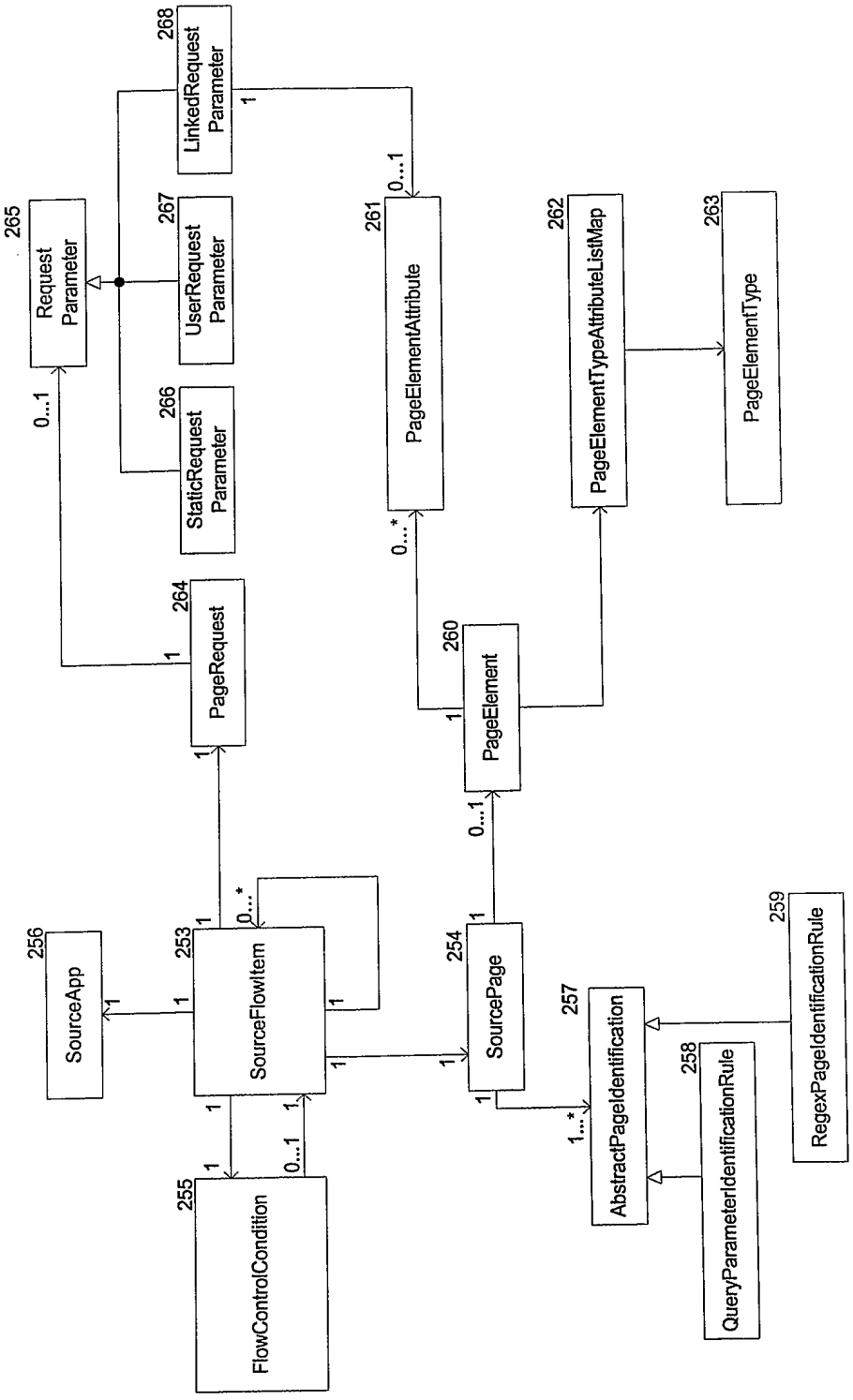

256
SourceApp
253
SourceFlowItem
255
FlowControlCondition
254
SourcePage
257
AbstractPageIdentification
258
QueryParameterIdentificationRule
259
RegexPageIdentificationRule
260
PageElement
261
PageElementAttribute
262
PageElementTypeAttributeListMap
263
PageElementType
264
PageRequest
265
Request Parameter
266
StaticRequest Parameter
267
UserRequest Parameter
268
LinkedRequest Parameter
0...1
0...*
1...*
1

FIG 35

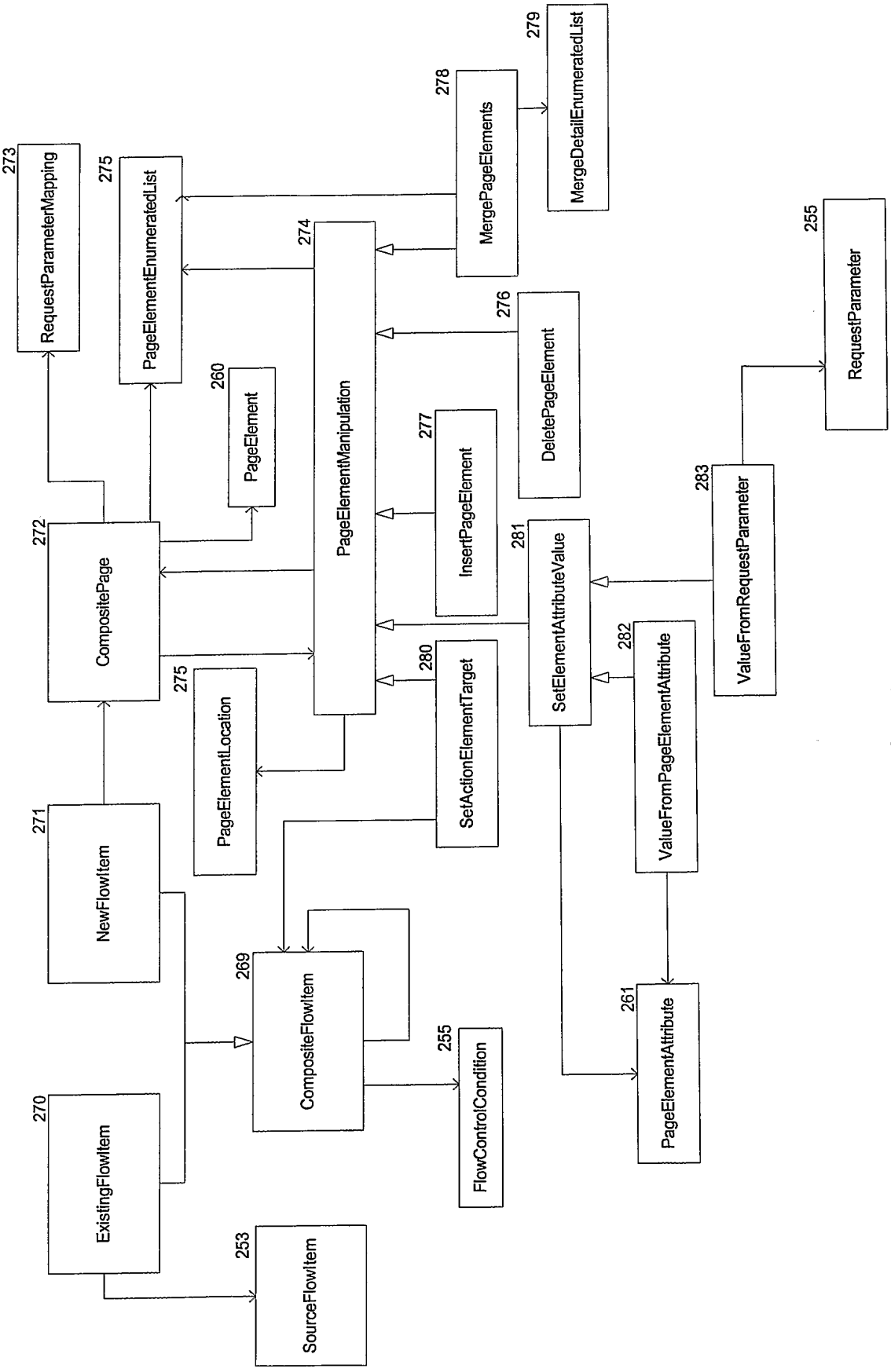

273
RequestParameterMapping
275
PageElementEnumeratedList
278
MergePageElements
279
MergeDetailEnumeratedList
274
PageElementManipulation
276
DeletePageElement
255
RequestParameter
260
PageElement
277
InsertPageElement
283
ValueFromRequestParameter
272
CompositePage
281
SetElementAttributeValue
275
PageElementLocation
280
SetActionElementTarget
282
ValueFromPageElementAttribute
271
NewFlowItem
269
CompositeFlowItem
255
FlowControlCondition
261
PageElementAttribute
270
ExistingFlowItem
253
SourceFlowItem

FIG 36

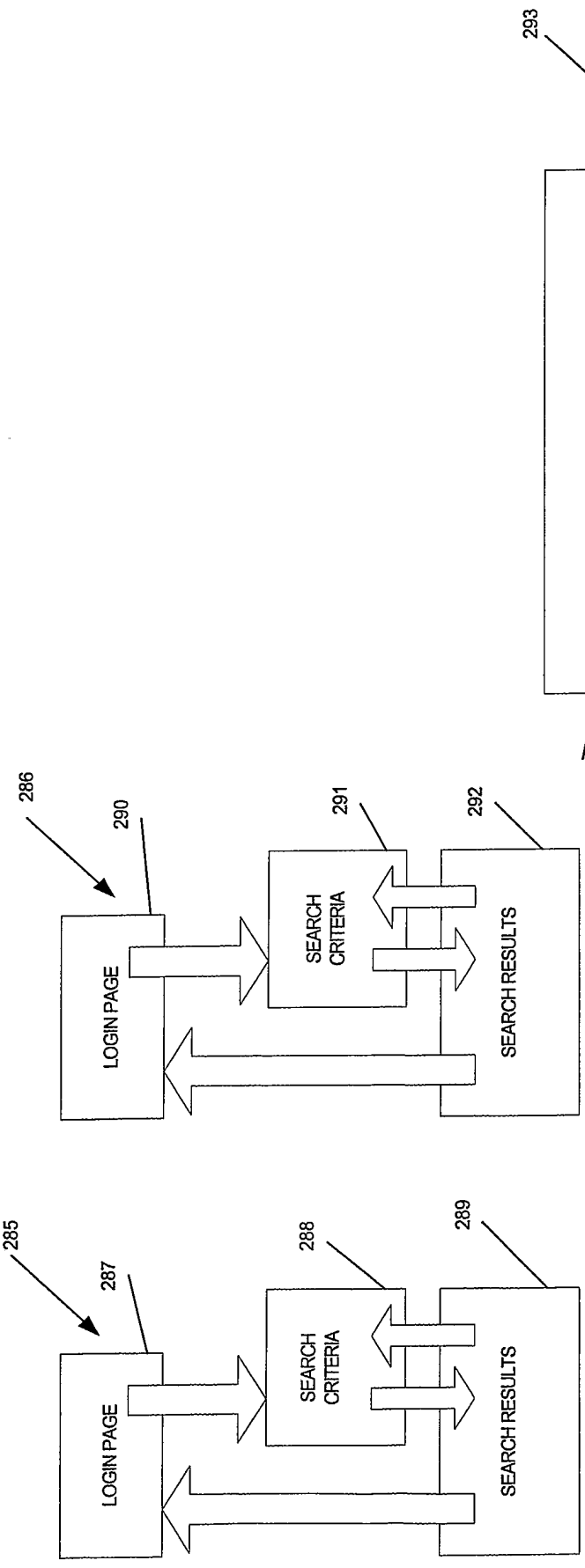


FIG 37A

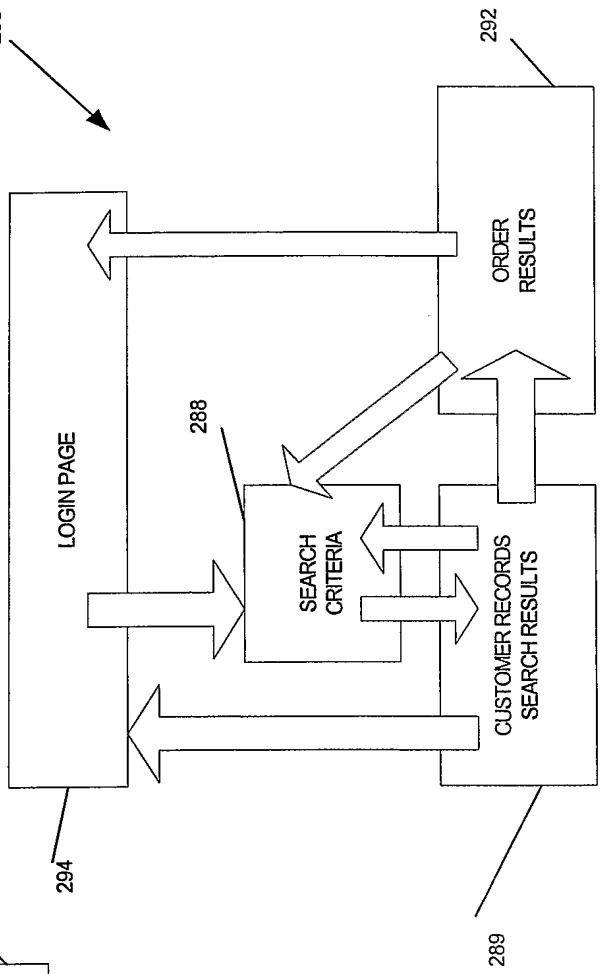


FIG 37B

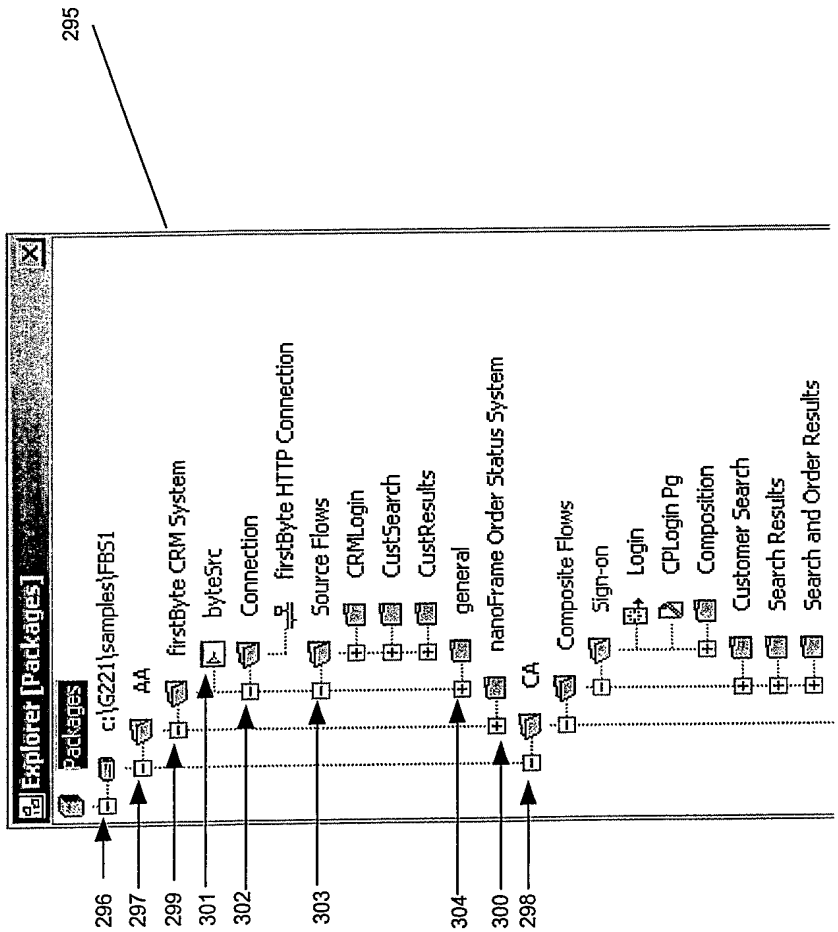

295
Explorer [Packages]
Packages
c:\IG221\samples\FBS1
AA
firstByte CRM System
byteSrc
Connection
firstByte HTTP Connection
Source Flows
CRMLogin
CustSearch
CustResults
general
nanoFrame Order Status System
CA
Composite Flows
Sign-on
Login
CPLogin Pg
Composition
Customer Search
Search Results
Search and Order Results
296
297
299
301
302
303
304
300
298

FIG 38

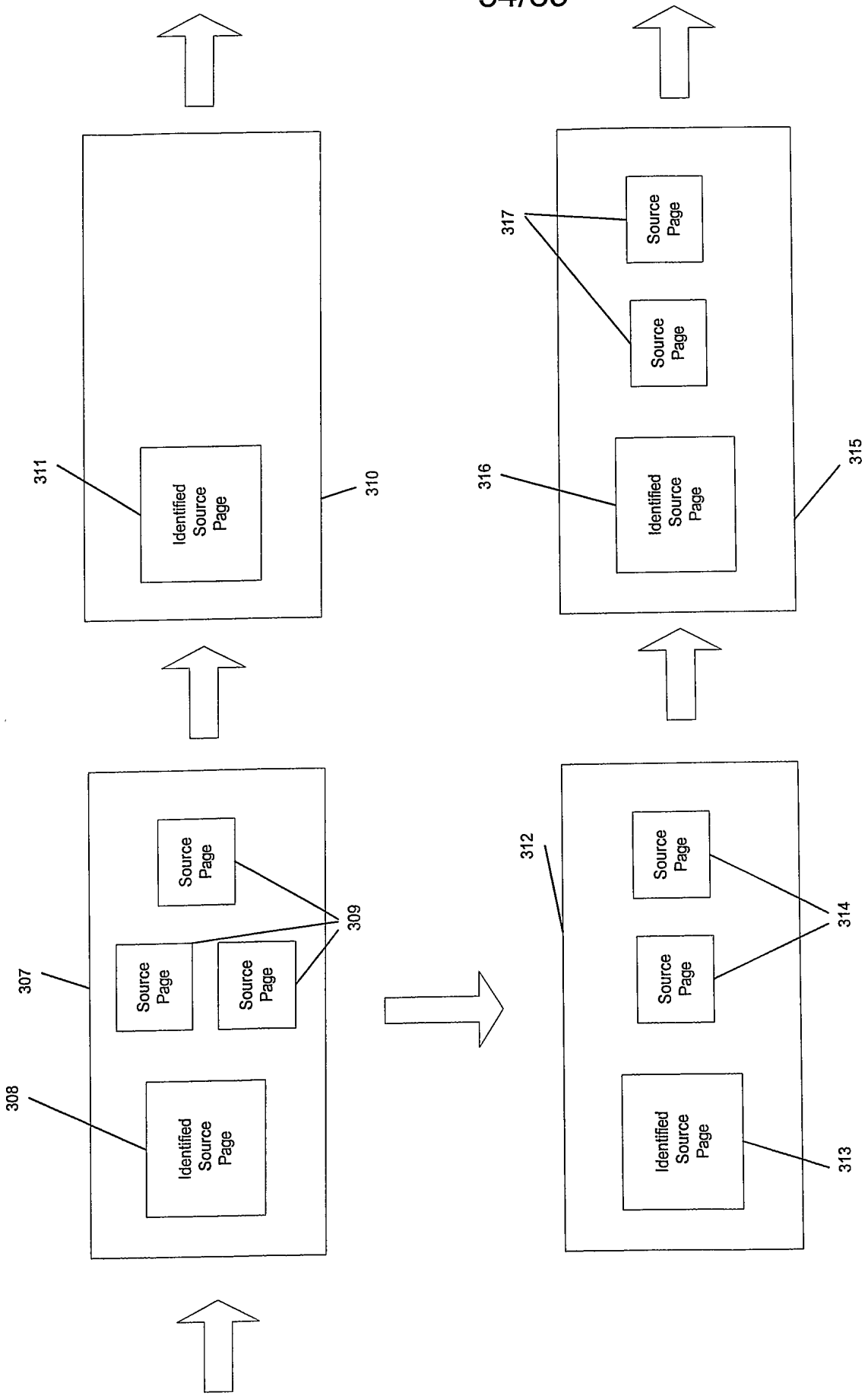

Identified Source Page
Source Page
Source Page
Source Page
307
308
309
310
311
312
313
314
315
316
317

FIG 39

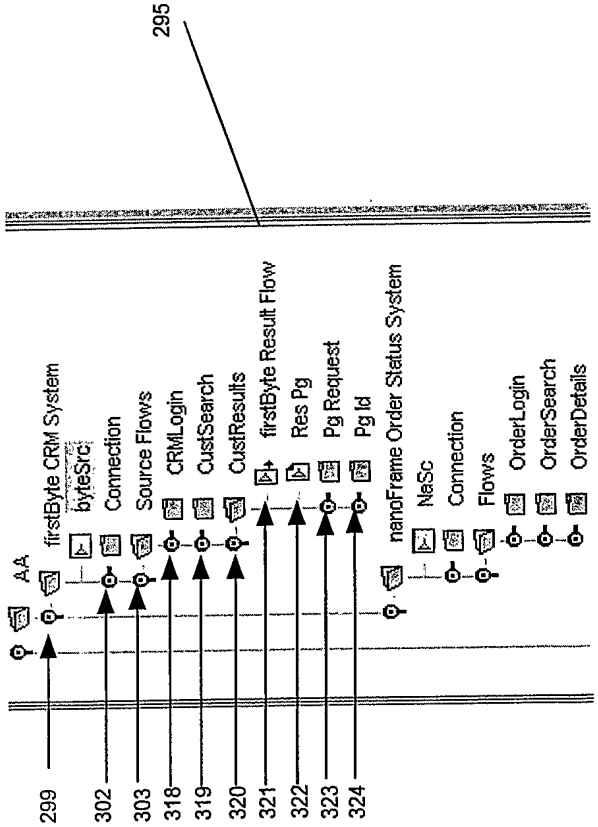

295
AA
firstByte CRM System
byteSrc
Connection
Source Flows
CRMLogin
CustSearch
CustResults
firstByte Result Flow
Res Pg
Pg Request
Pg Id
nanoFrame Order Status System
NaSc
Connection
Flows
OrderLogin
OrderSearch
OrderDetails
299
302
303
318
319
320
321
322
323
324

FIG 40

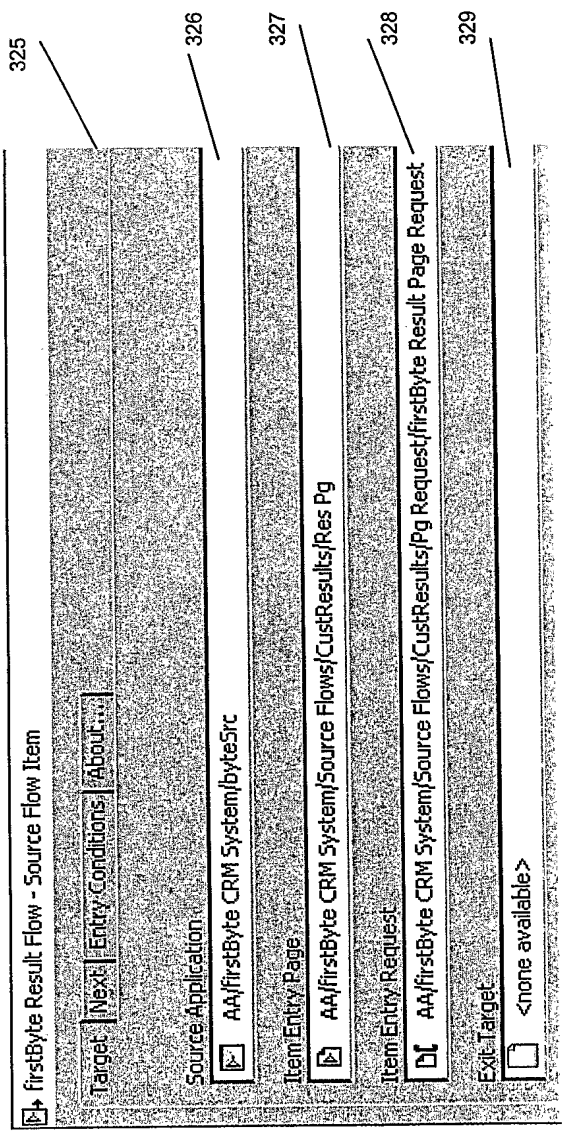

325
firstByte Result Flow - Source Flow Item
Target
Next
Entry Conditions
About...
Source Application:
AA/firstByte CRM System/byteSrc
326
Item Entry Page:
AA/firstByte CRM System/Source Flows/CustResults/Res Pg
327
Item Entry Request:
AA/firstByte CRM System/Source Flows/CustResults/Pg Request/firstByte Result Page Request
328
Exit Target:
<none available>
329

FIG 41

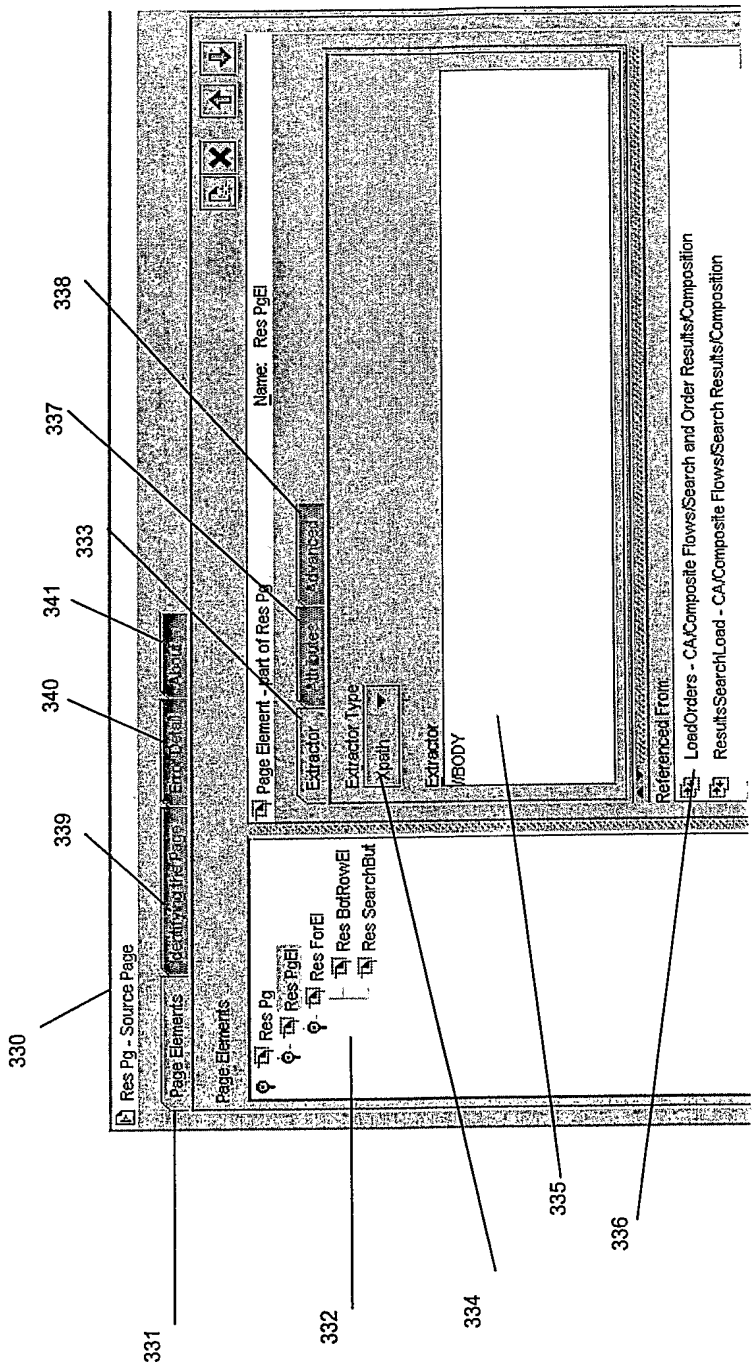

330
331
332
334
335
336
337
338
339
340
341
333
Res Pg - Source Page
Page Elements
Res Pg
Res PgEl
Res ForEl
Res BdRowEl
Res SearchBut
Page Element - Part of Res Pg
Name: Res PgEl
Extractor
Attributes
Advanced
Extractor Type
XPath:
Extractor
/BODY
Referenced From:
LoadOrders - CA/Composite Flows/Search and Order Results/Composition
ResultsSearchLoad - CA/Composite Flows/Search Results/Composition

FIG 42

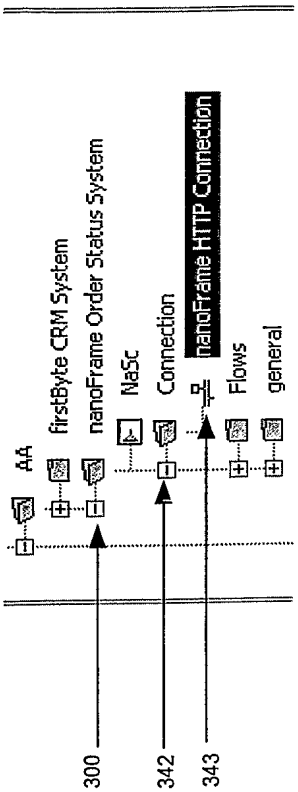

AA
firstByte CRM System
nanoFrame Order Status System
NaSc
Connection
nanoFrame HTTP Connection
Flows
general
300
342
343

FIG 43

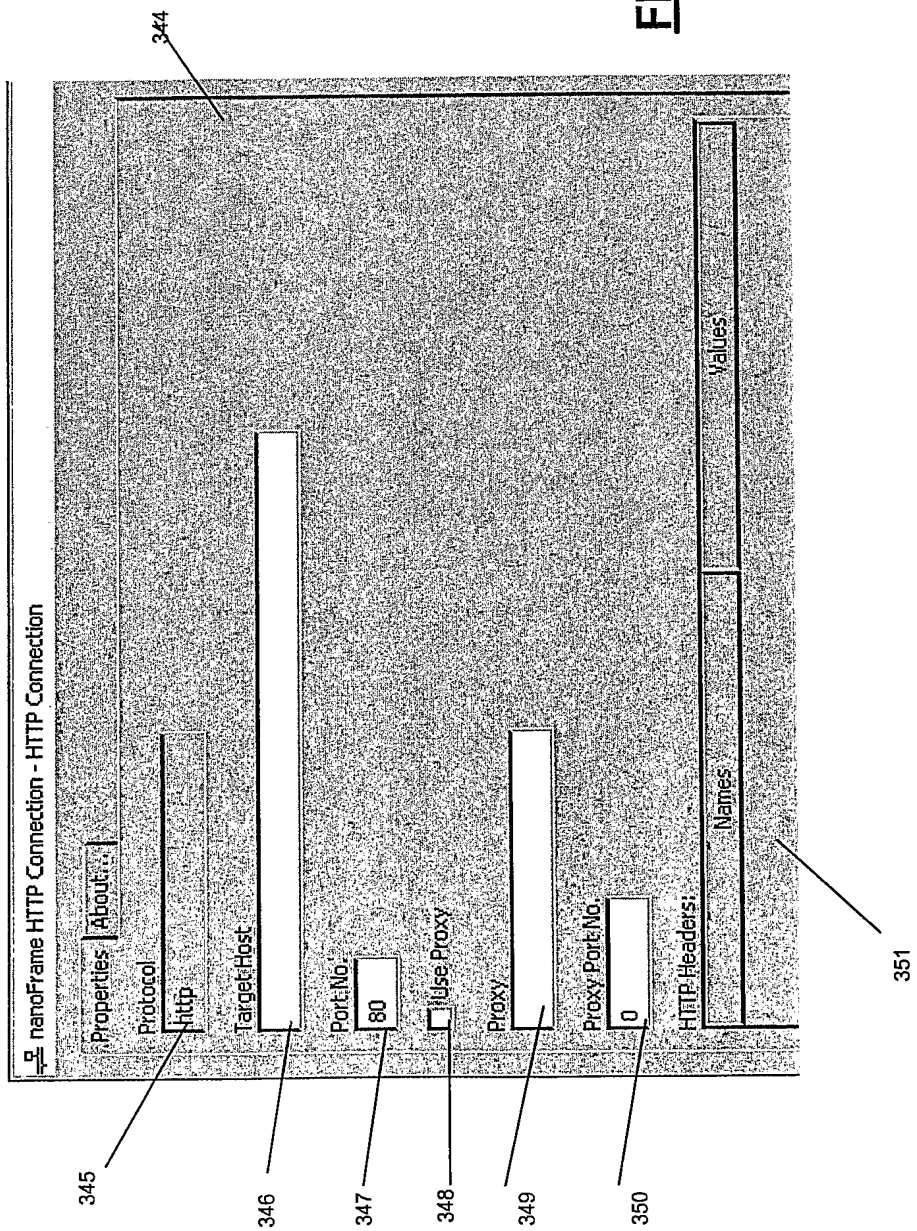

nanoFrame HTTP Connection - HTTP Connection
Properties
About...
Protocol
http
Target Host
Port No.
80
Use Proxy
Proxy
Proxy Port No.
0
HTTP Headers:
Names
Values
344
345
346
347
348
349
350
351

FIG 44

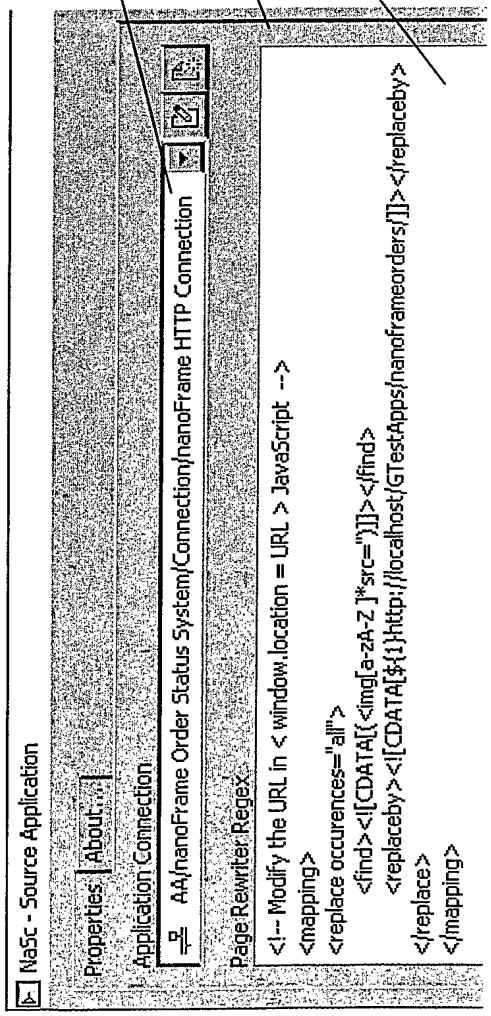

NaSc - Source Application
Properties
About...
Application Connection
AA/nanoFrame Order Status System/Connection/nanoFrame HTTP Connection
Page Rewriter Regex
<!-- Modify the URL in < window.location = URL > JavaScript -->
<mapping>
<replace occurences="all">
<find><![CDATA[(<img[a-zA-Z]*src=")]]></find>
<replaceby><![CDATA[${1}http://localhost/GTestApps/nanoframeorders/]]></replaceby>
</replace>
</mapping>
354
352
353

FIG 45

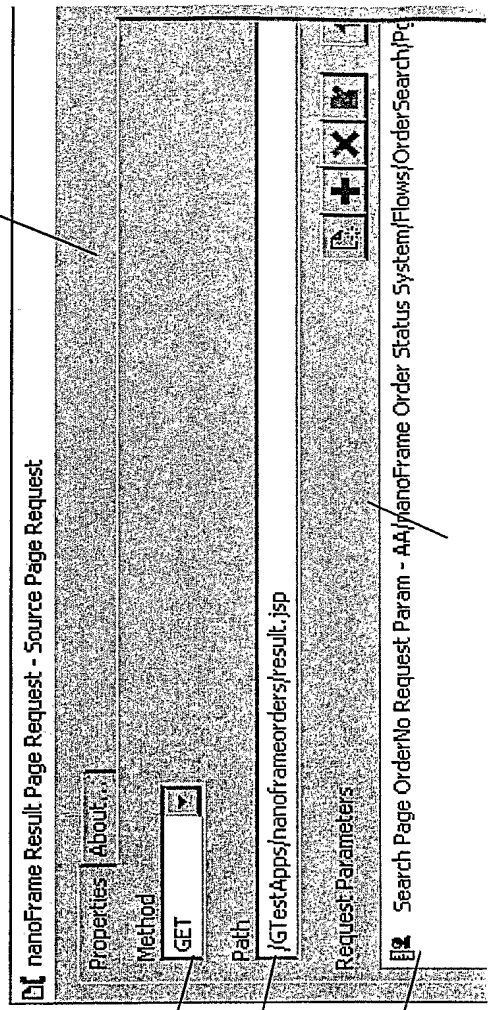

nanoFrame Result Page Request - Source Page Request
Properties
About...
Method
GET
Path
/GTestApps/nanoframeorders/result.jsp
Request Parameters
Search Page OrderNo Request Param - AA/nanoFrame Order Status System/Flows/OrderSearch/Pg
355
356
357
358

FIG 46

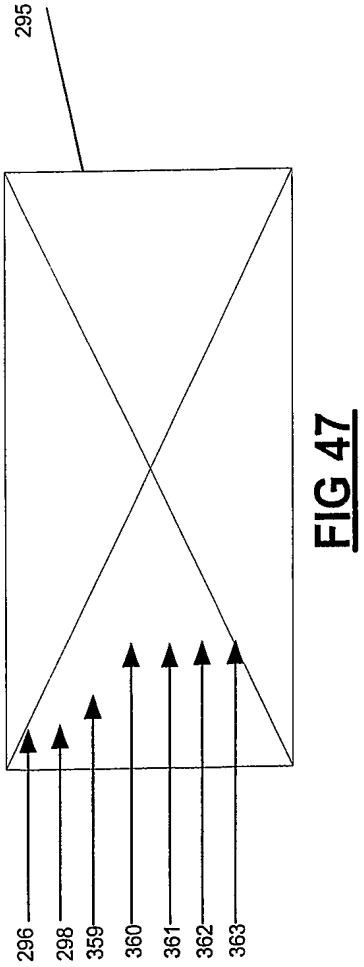


FIG 47

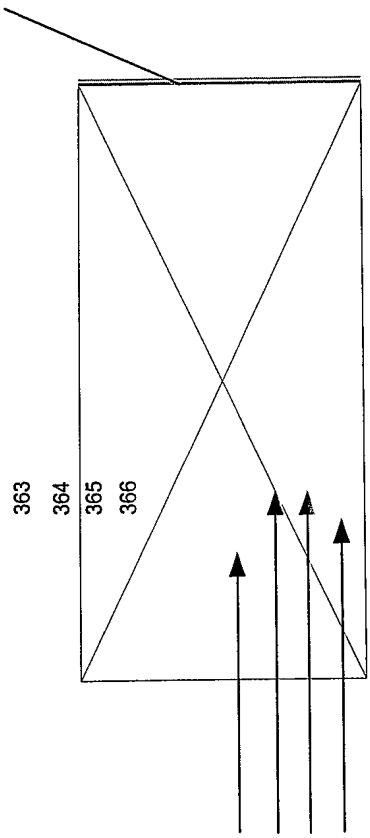


FIG 48

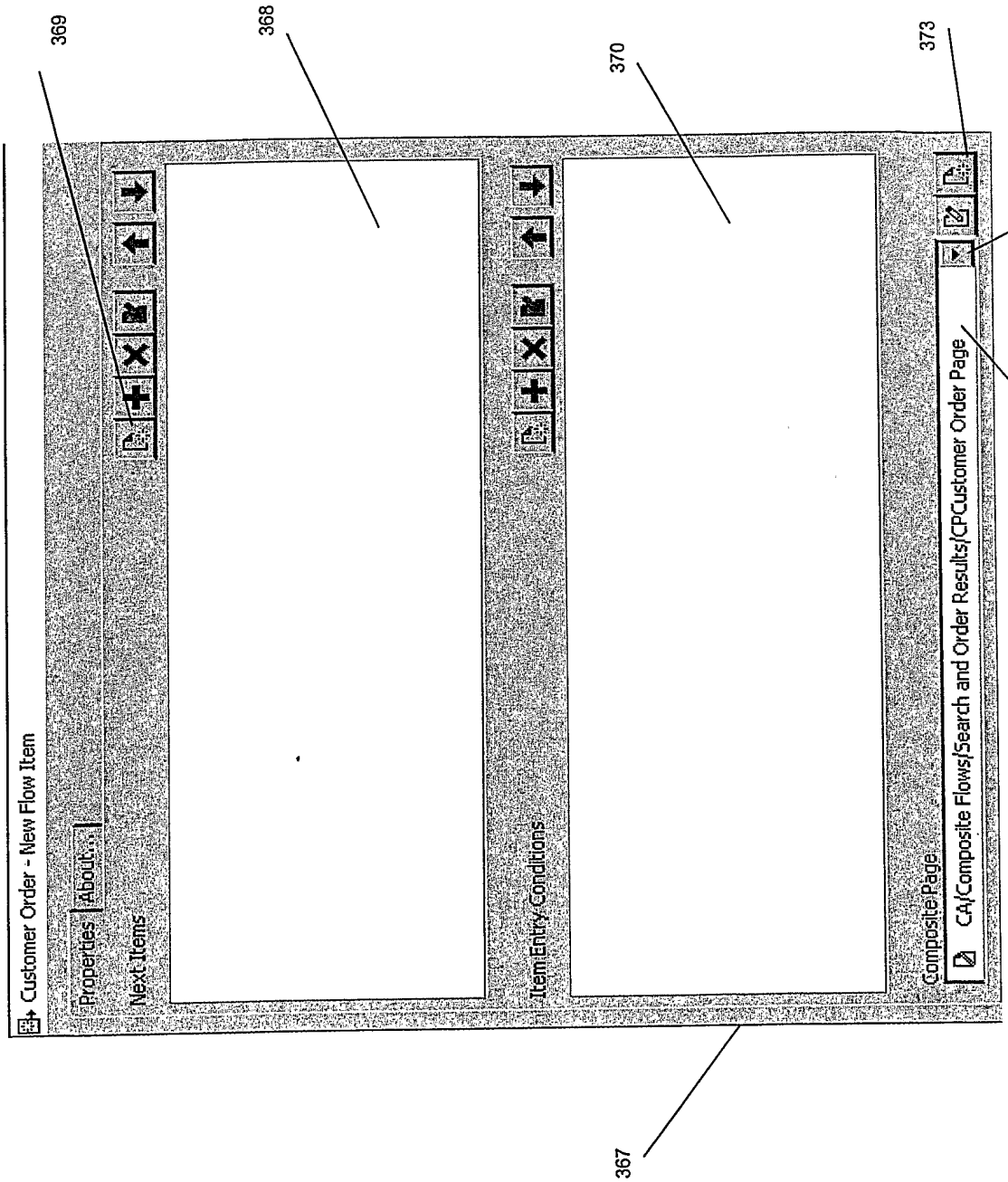

369
368
370
373
372
371
367
Customer Order - New Flow Item
Properties
About...
Next Items
Item Entry Conditions
Composite Page
CA/Composite Flows/Search and Order Results/CPCustomer Order Page

FIG 49

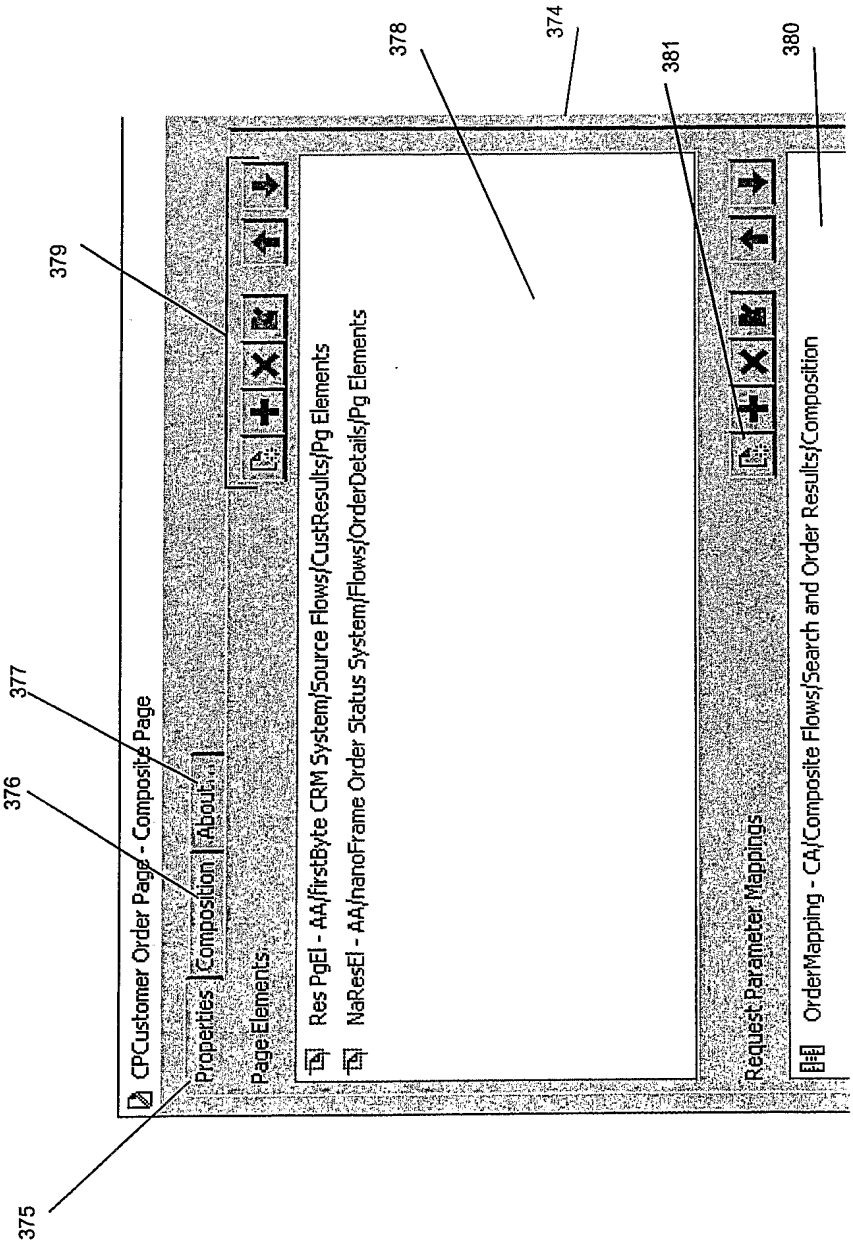

CPCustomer Order Page - Composite Page
Properties
Composition
About...
Page Elements:
Res PgEl - AA/firstByte CRM System/Source Flows/CustResults/Pg Elements
NaResEl - AA/nanoFrame Order Status System/Flows/OrderDetails/Pg Elements
Request Parameter Mappings
OrderMapping - CA/Composite Flows/Search and Order Results/Composition
375
376
377
379
378
374
381
380

FIG 50

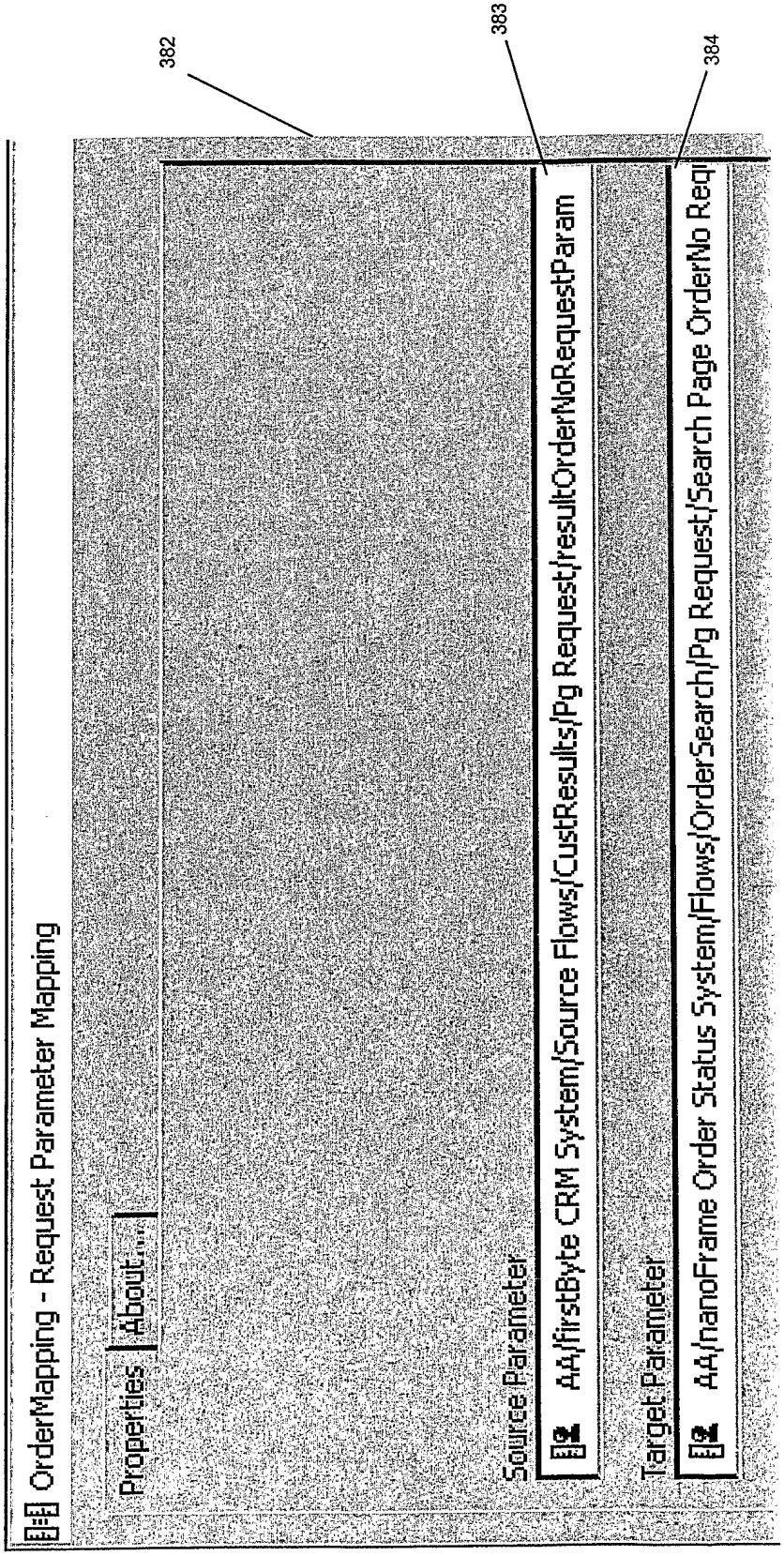

OrderMapping - Request Parameter Mapping
Properties
About...
Source Parameter
AA/FirstByte CRM System/Source Flows/CustResults/Pg Request/resultOrderNoRequestParam
Target Parameter
AA/nanoFrame Order Status System/Flows/OrderSearch/Pg Request/Search Page OrderNo Req
382
383
384

FIG 51

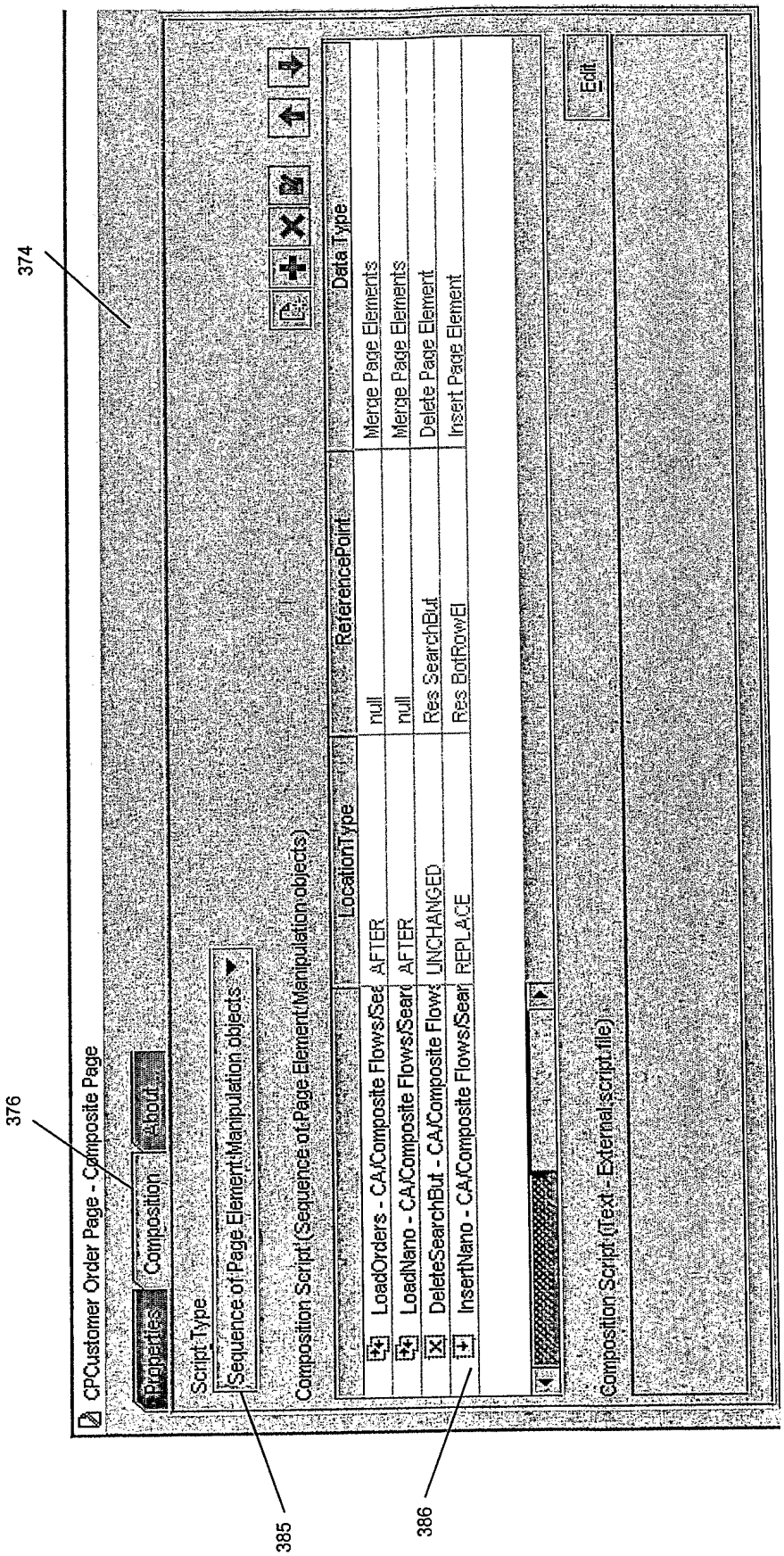

CPCustomer Order Page - Composite Page
Properties
Composition
About
Script Type
Sequence of Page Element Manipulation objects
Composition Script (Sequence of Page Element Manipulation objects)
LocationType
ReferencePoint
Data Type
LoadOrders - CA/Composite Flows/Sea
AFTER
null
Merge Page Elements
LoadNano - CA/Composite Flows/Searc
AFTER
null
Merge Page Elements
DeleteSearchBut - CA/Composite Flows
UNCHANGED
Res SearchBut
Delete Page Element
InsertNano - CA/Composite Flows/Sear
REPLACE
Res BotRowEl
Insert Page Element
Edit
Composition Script (Text - External script file)
374
376
385
386

FIG 52

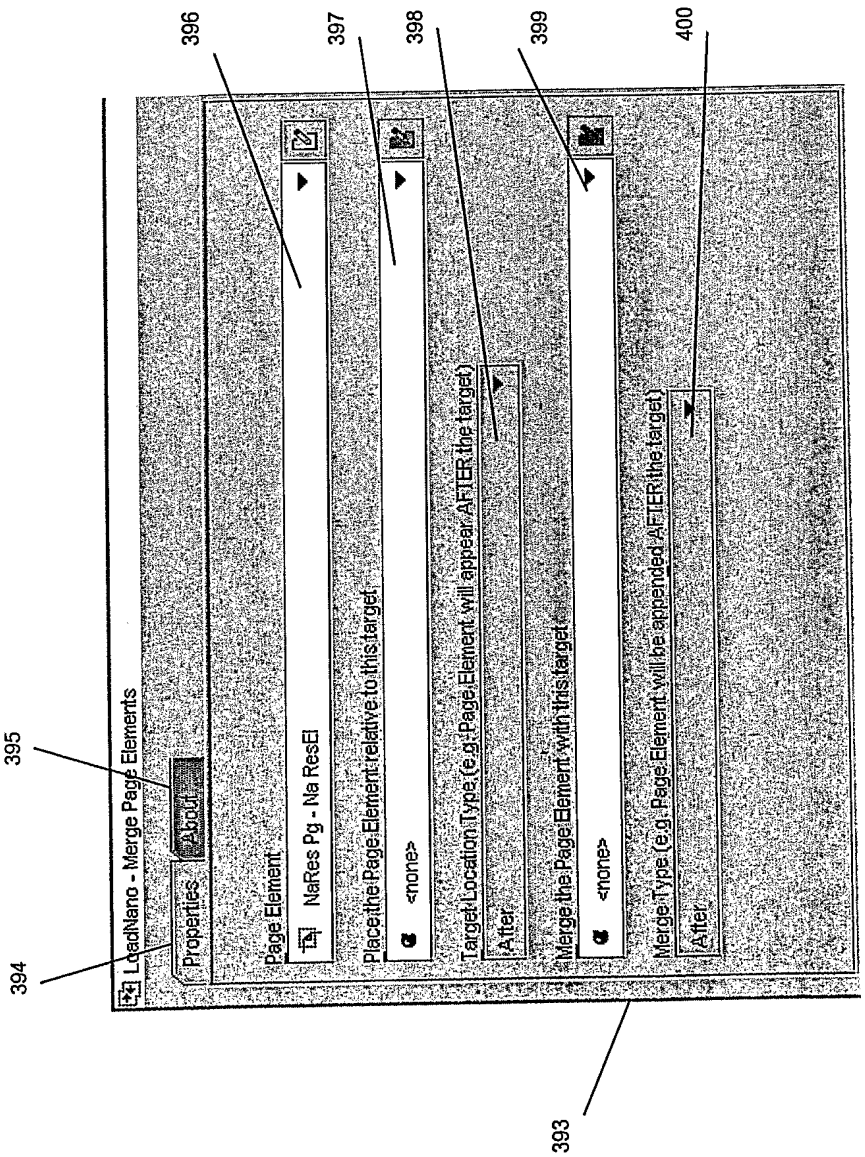

LoadNano - Merge Page Elements
Properties
About
Page Element
NaRes Pg - Na ResEl
Place the Page Element relative to this target
<none>
Target Location Type (e.g. Page Element will appear AFTER the target)
After
Merge the Page Element with this target
<none>
Merge Type (e.g. Page Element will be appended AFTER the target)
After
393
394
395
396
397
398
399
400

FIG 54

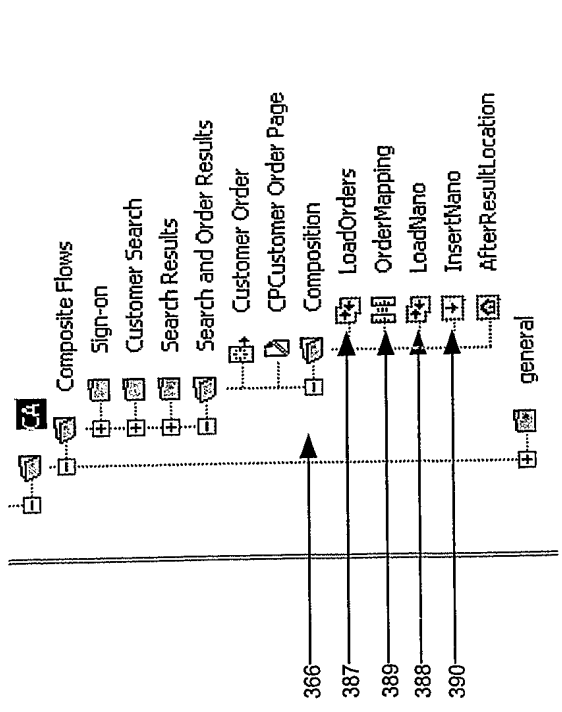

Composite Flows
Sign-on
Customer Search
Search Results
Search and Order Results
Customer Order
CPCustomer Order Page
Composition
LoadOrders
OrderMapping
LoadNano
InsertNano
AfterResultLocation
general
366
387
389
388
390

FIG 53

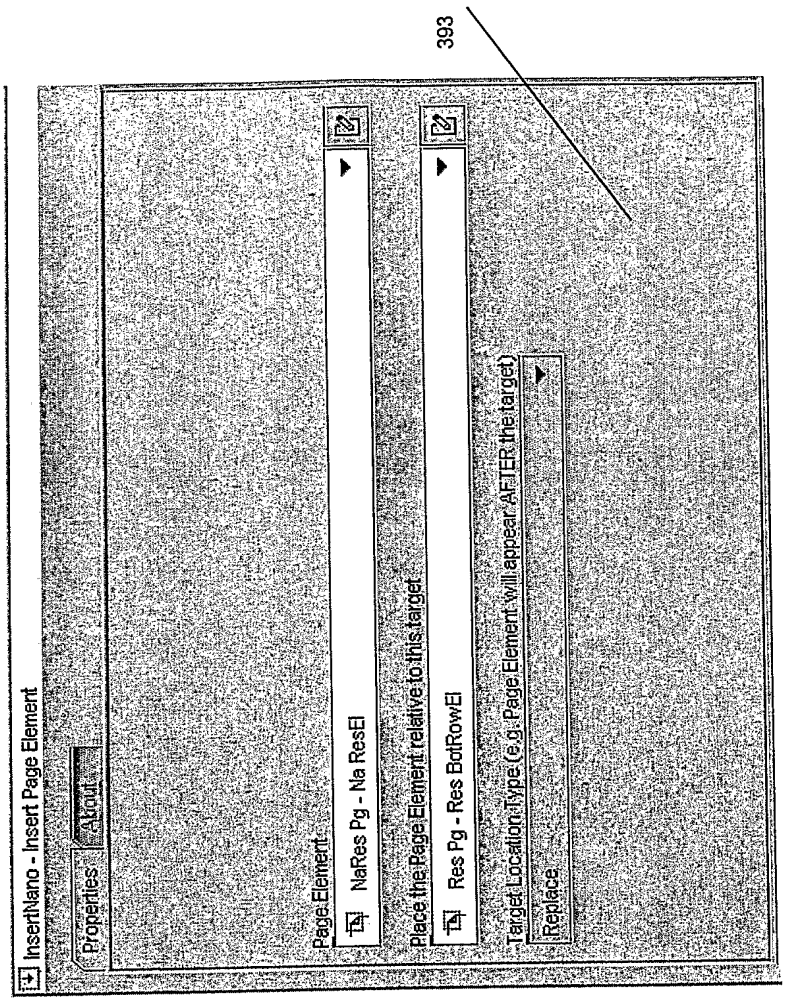

InsertNano - Insert Page Element
Properties
About
Page Element
NaRes Pg - Na ResEl
Place the Page Element relative to this target
Res Pg - Res BotRowEl
Target Location Type (e.g. Page Element will appear AFTER the target)
Replace
393

FIG 55

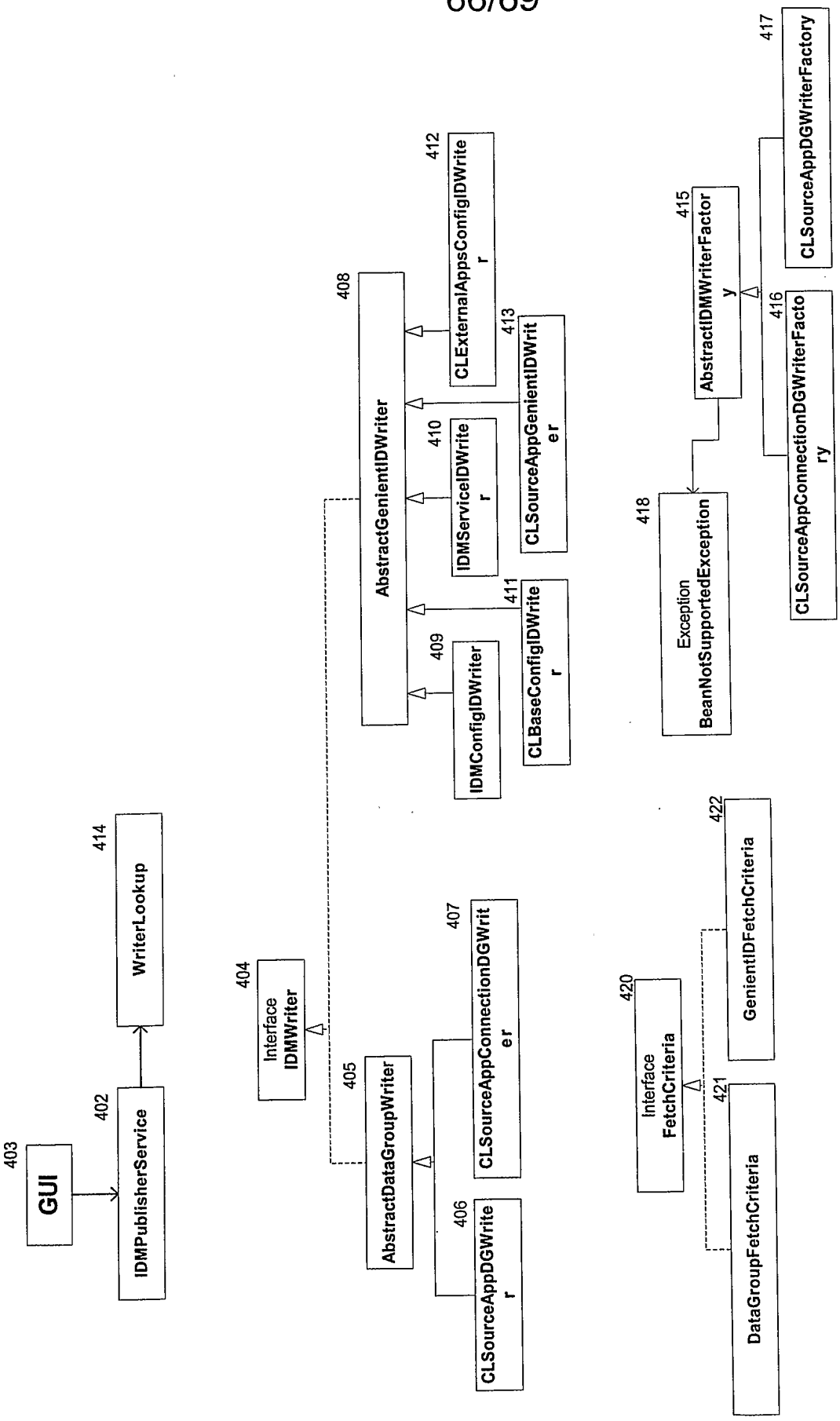

403
GUI
402
IDMPublisherService
414
WriterLookup
404
Interface
IDMWriter
405
AbstractDataGroupWriter
406
CLSourceAppDGWrite
r
407
CLSourceAppConnectionDGWrit
er
408
AbstractGenientIDWriter
409
IDMConfigIDWriter
410
IDMServiceIDWrite
r
411
CLBaseConfigIDWrite
r
412
CLExternalAppsConfigIDWrite
r
413
CLSourceAppGenientIDWrit
er
420
Interface
FetchCriteria
421
DataGroupFetchCriteria
422
GenientIDFetchCriteria
418
Exception
BeanNotSupportedException
415
AbstractIDMWriterFactor
y
416
CLSourceAppConnectionDGWriterFacto
ry
417
CLSourceAppDGWriterFactory

FIG 56

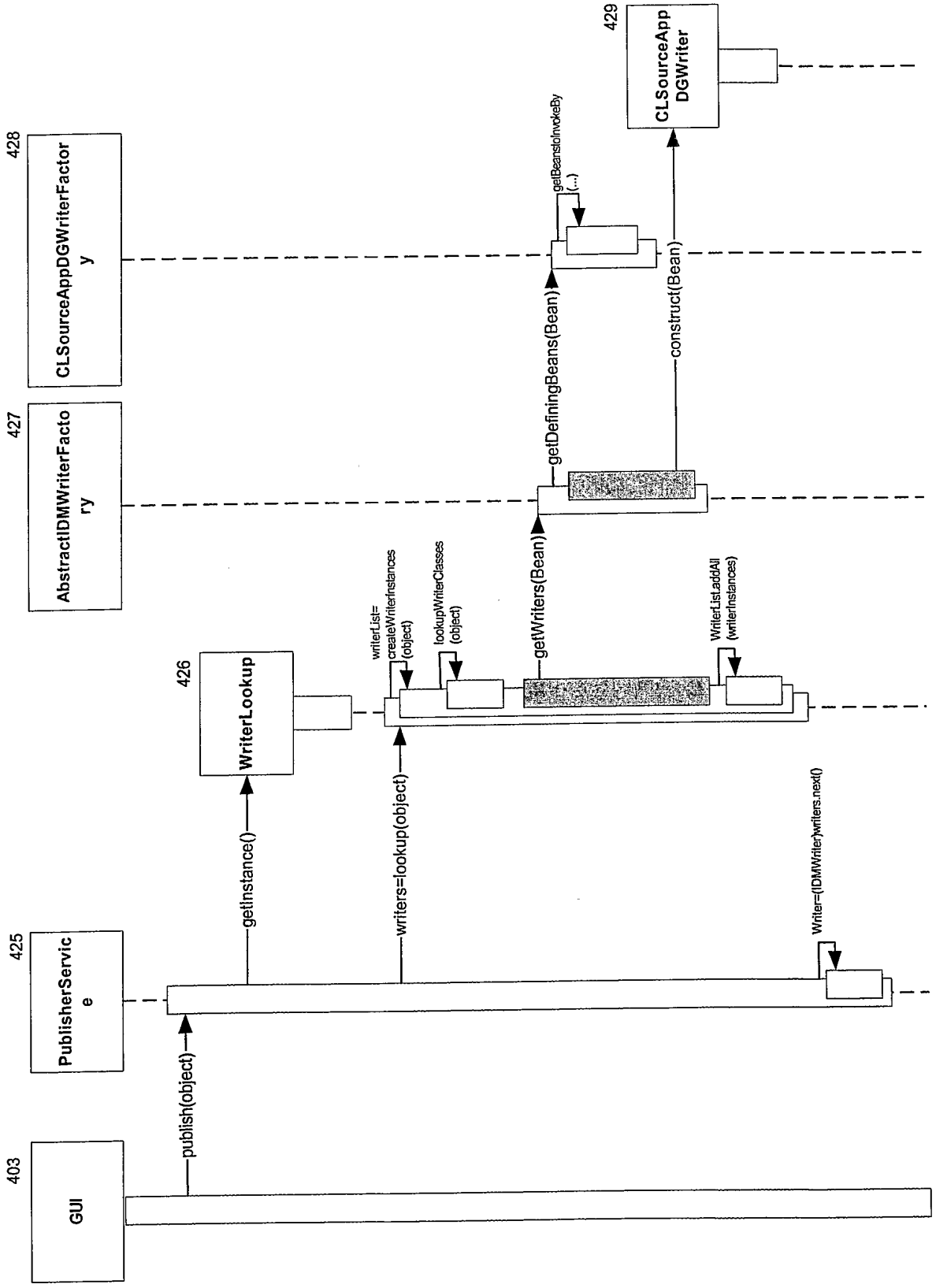
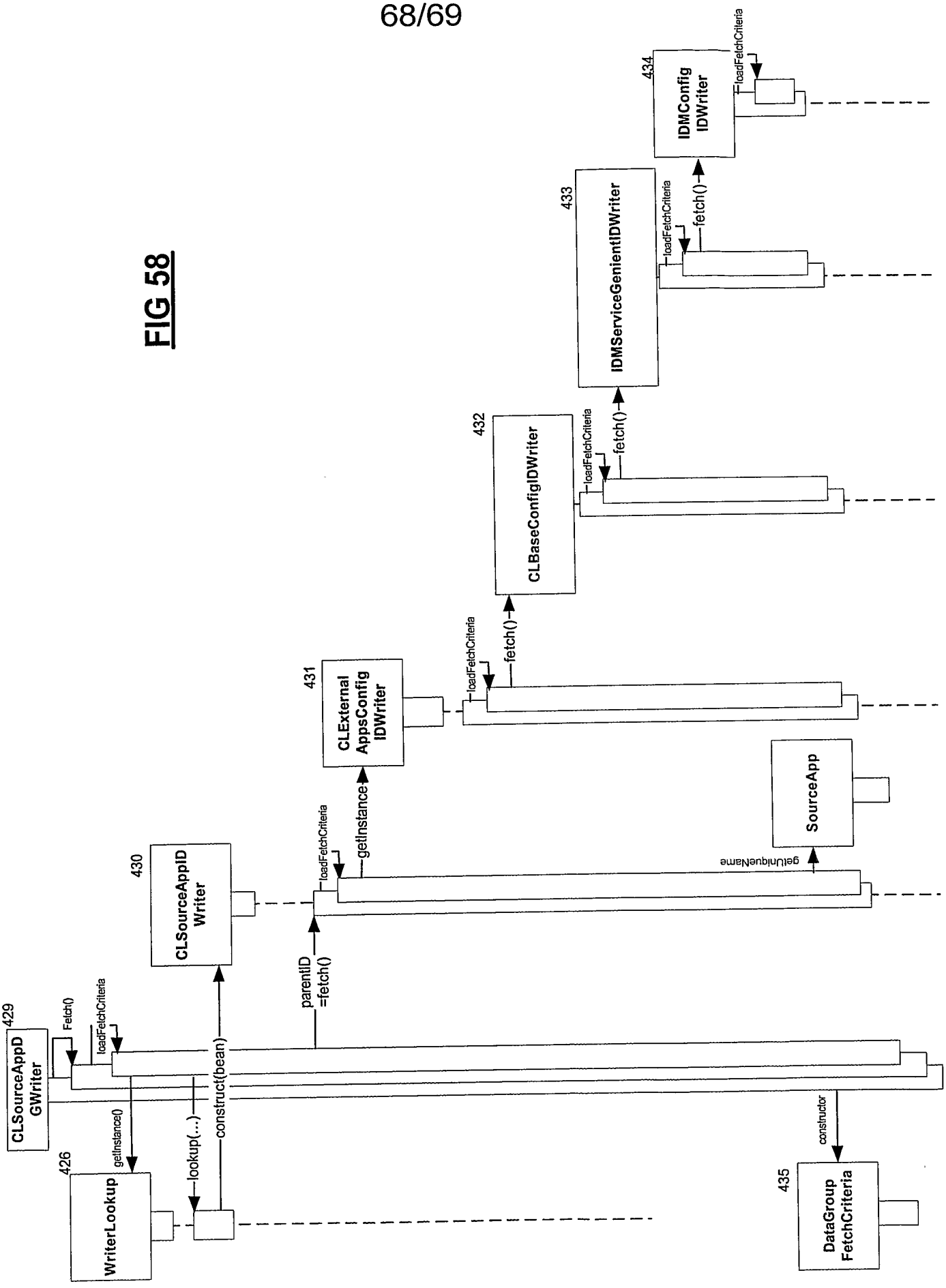

403
GUI
425
PublisherServic
e
426
WriterLookup
427
AbstractIDMWriterFacto
ry
428
CLSourceAppDGWriterFactor
y
429
CLSourceApp
DGWriter
publish(object)
getInstance()
writers=lookup(object)
writerList=
createWriterInstances
(object)
lookupWriterClasses
(object)
getWriters(Bean)
getDefiningBeans(Bean)
getBeansToInvokeBy
(...)
construct(Bean)
WriterList.addAll
(writerInstances)
Writer=(IDMWriter)writers.next()

FIG 57

FIG 58


CLSourceAppD GWriter
429
Fetch()
loadFetchCriteria
getInstance()
WriterLookup
426
lookup(...)
construct(bean)
CLSourceAppID Writer
430
parentID =fetch()
loadFetchCriteria
getInstance
CLExternal AppsConfig IDWriter
431
loadFetchCriteria
fetch()
CLBaseConfigIDWriter
432
loadFetchCriteria
fetch()
IDMServiceGenientIDWriter
433
loadFetchCriteria
fetch()
IDMConfig IDWriter
434
loadFetchCriteria
SourceApp
getUniqueName
constructor
DataGroup FetchCriteria
435

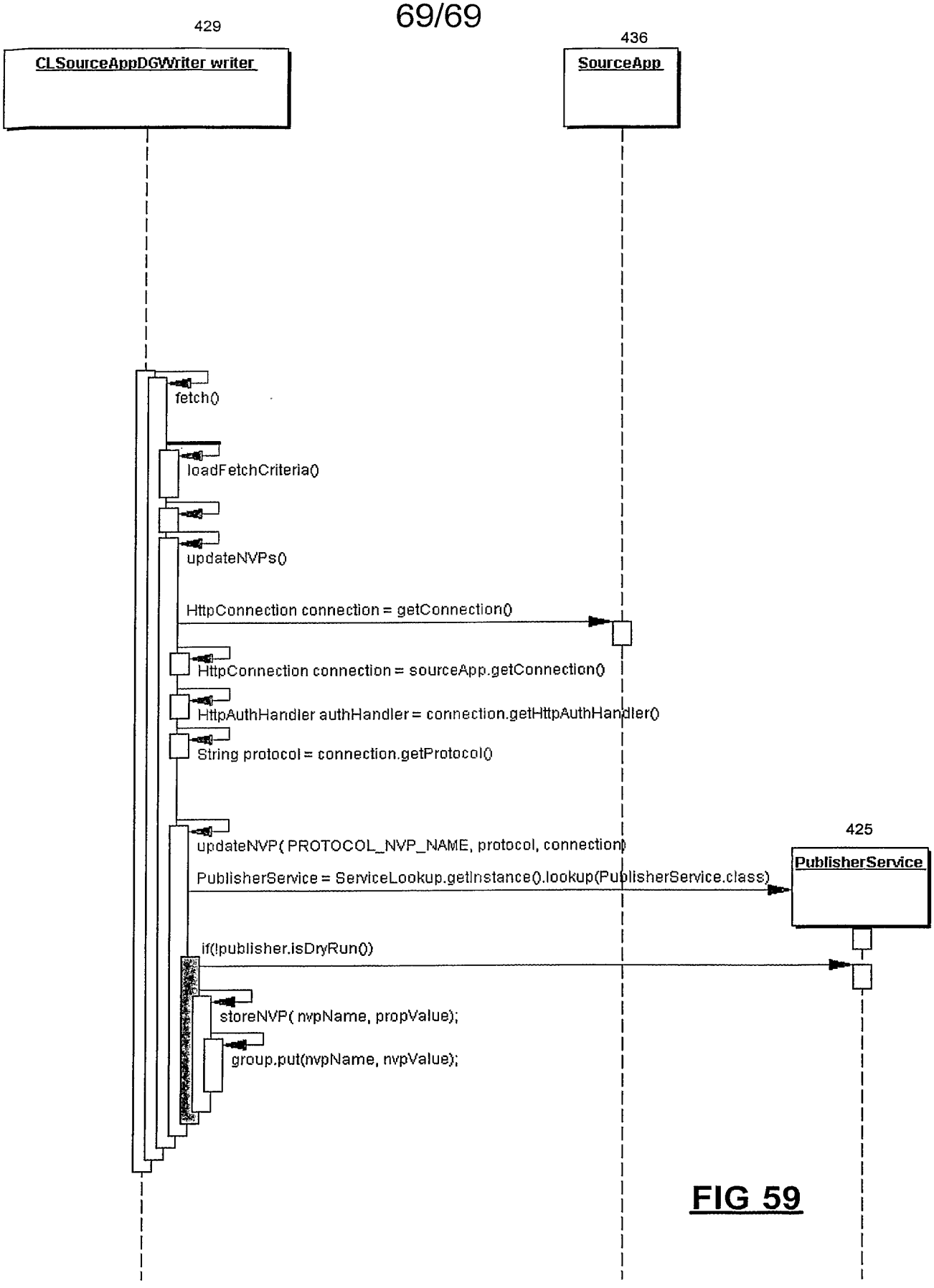

429
CLSourceAppDGWriter writer
436
SourceApp
fetch()
loadFetchCriteria()
updateNVPs()
HttpConnection connection = getConnection()
HttpConnection connection = sourceApp.getConnection()
HttpAuthHandler authHandler = connection.getHttpAuthHandler()
String protocol = connection.getProtocol()
updateNVP(PROTOCOL_NVP_NAME, protocol, connection)
425
PublisherService
PublisherService = ServiceLookup.getInstance().lookup(PublisherService.class)
if(!publisher.isDryRun())
storeNVP(nvpName, propValue);
group.put(nvpName, nvpValue);

FIG 59